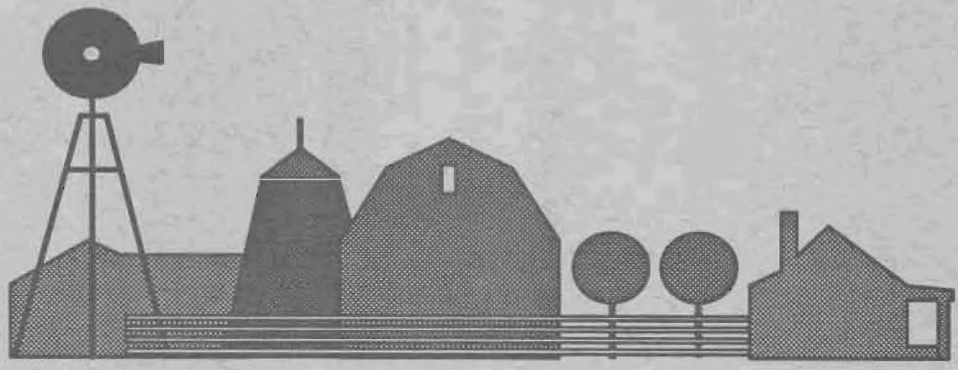
DAIRY FARM MANAGEMENT

AUGUST 1996 R.B. 96-11

BUSINESS SUMMARY NEW YORK STATE 1995



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ABSTRACT

Business and financial records from 321 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of cash accounting and accrual adjustments to measure farm profitability, cash flow, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with improved evaluation techniques to show the relationship between good management performance and financial success.

The farms in the project averaged 160 cows per farm and 20,269 pounds of milk sold per cow in 1995, which are above the average size and management level of all New York dairy farms. Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged $50,593 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 5.1 percent in 1995.

Differences in profitability between farms continues to widen. The top 10 percent of farms average net farm income was $241,346, while the lowest 10 percent was a negative $25,068. Rates of return on equity ranged from 22 percent to negative 35 percent from the highest 10 percent to the lowest 10 percent of farms.

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and were more profitable than farms not adopting bST. Farms adopting rotational grazing generally produced less milk per cow than non-grazing farms, but differences in cost of production and profitability were not significant.

Large freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and were more profitable than herds milking two times per day (2X). Operating cost per cwt. of milk was similar for 3X and 2X milking herds.

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INTRODUCTION*

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Department of Agricultural, Resource, and Managerial Economics of the College of Agriculture and Life Sciences at Cornell University, and County Extension staff, cooperate in sponsoring DFBS projects. In 1995, about 400 dairy farms participated. Business records submitted by dairy farmers from 45 counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cooperative Extension agents and specialists enroll the cooperators and collect the records. Each cooperator receives a detailed summary and analysis of his or her business. All agents and specialists are using a microcomputer in their offices and/or on the farm to process and return the individual farm business reports for immediate use. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional averages. The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills and solve business and financial management problems.

Individual farm records from the 6 regions and 45 counties of the State have been combined and the total data set analyzed to determine the status and study the effects of changes in price, technology, and management on dairy farm incomes (Figure 1, page 2). This study provides current dairy farm business information for use by farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

Farms Included

Data from 321 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were equally represented (Figure 1, page 2). The 321 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, and part-time dairy operators have been excluded from the main body of this report. Dairy farm renters are summarized separately in the supplemental information section of the publication.

Features

Accrual procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 7. Four measures of farm profits; net farm income, labor and management income, return on equity and all capital, and return to all labor and management are calculated on pages 10 through 12. The balance sheet is presented with the current portion of intermediate and long term debt identified as a current liability, and the impact on net worth of including deferred taxes on assets on pages 13 through 15. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 16. A detailed cash flow statement, including budgeting data and debt repayment analysis is presented on pages 17 through 19.

The whole farm method of calculating the cost of producing milk is detailed on pages 26 through 31. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 55 through 59. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 60, 61 and 68.

Acknowledgements

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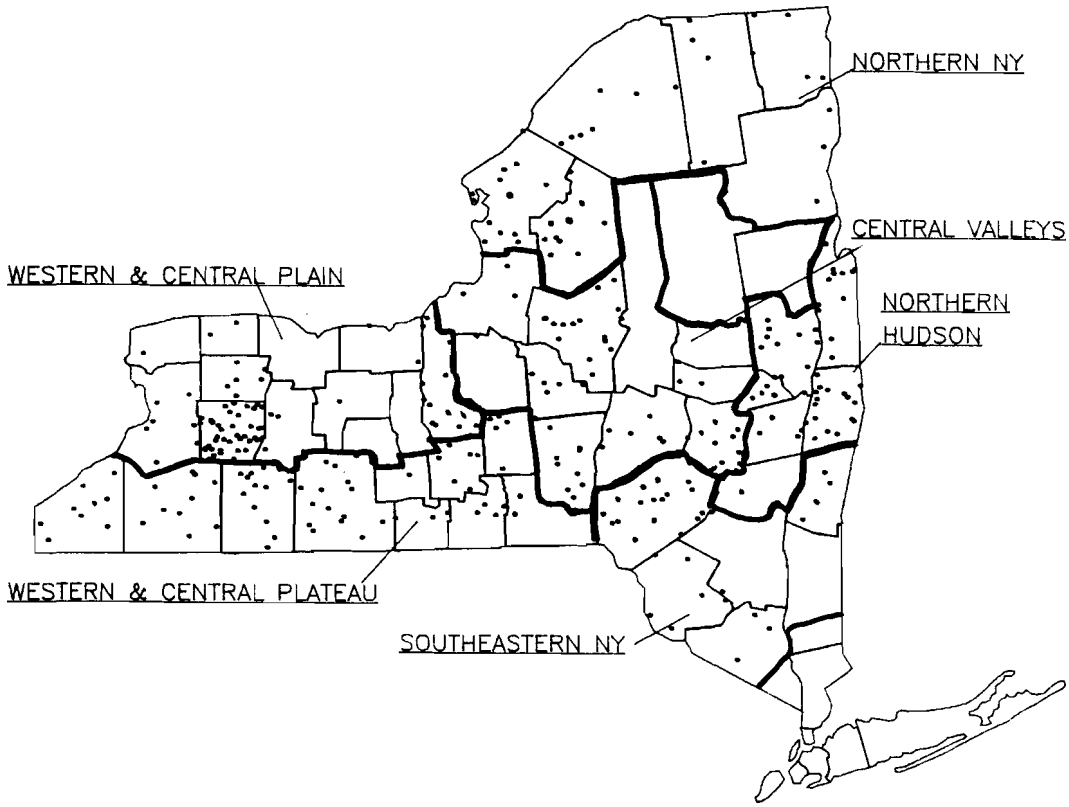
* This report was written by Stuart F. Smith, Senior Extension Associate; Wayne A. Knoblauch, Professor; and Linda D. Putnam, Extension Support Specialist, in the Department of Agricultural, Resource, and Managerial Economics at Cornell University.

Figure 1.

LOCATION OF THE 321 NEW YORK DAIRY FARMS IN THE 1995 DAIRY FARM BUSINESS SUMMARY



1995 Regional Summary Publications

Region	Publications	Author(s)
Western and Central Plain	E.B. 96-06	Wayne A. Knoblauch, Stuart F. Smith, Linda D. Putnam, Jason Karszes, Michael Stratton, James Hilson, David Thorp & George Allhusen
Northern Hudson	E.B. 96-07	Stuart F. Smith, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton & David R. Wood
Western and Central Plateau	E.B. 96-09	Wayne A. Knoblauch, Linda D. Putnam, Carl A. Crispell, Joan S. Petzen, James W. Grace, Gerald A. LeClar, Charles H. Cuykendall & Andrew N. Dufresne
Northern New York	E.B. 96-10	Stuart F. Smith, Linda D. Putnam, Patricia Beyer, Anita Deming, Trent Teegerstrom & George Yarnall
Central Valleys	E.B. 96-11	Eddy L. LaDue, Stuart F. Smith, Karen Livingston, James A. Hilson, A. Edward Staehr, Thomas Weeks, Jacqueline M. Hilts, Charles Z. Radick & Linda D. Putnam
Southeastern New York	E.B. 96-12	Robert A. Milligan, Linda D. Putnam, Paul Cerosaletti, Stephen E. Hadcock, Larry R. Hulle, Mariane Kiraly & Colleen A. McKeon

FORTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

In 1956 Professor C. Arthur Bratton published the first summary of dairy farm business data from a group of counties representing the dairy farming industry of New York State. It was the summary of 1955 for 201 dairy farm businesses in 7 central New York counties. The counties were Cayuga, Chenango, Fulton, Madison, Montgomery, Oneida, and Otsego. In 1957, C.A. Bratton, George Conneman, Robert Smith and Clifton Loomis cooperated on the publication of A.E. 1068, New York Dairy Farm Business Summaries for 1956. This was the first New York State Dairy Farm Business Summary to be published as an A.E. Bulletin. It includes 342 farms from 10 counties.

Here are some of the highlights from the 1955 and 1956 summaries.

Table 1.

SELECTED BUSINESS FACTORS
New York State Dairy Farms, 1955 & 1956

Item	1955	1956
Number of farms	201	342
Average number of cows	33	34
Average number of heifers	20	20
Average number of crop acres	105	98
Milk sold per cow, lbs.	8,747	8,897
Milk sold per worker, lbs.	160,362	168,100
Capital investment per cow	$1,242	$1,235
Operating cost of producing cwt. milk	$1.61	$1.60
Average price received for cwt. milk	$4.09	$4.18
Net farm income	$4,900	$5,300

Refer to Table 2 on page 4 to see how dairy farming has changed since 1965. Dairy cows per farm increased 385 percent between 1955 and 1995 and nearly half of that increase occurred in the last 10 years. Milk output per cow increased 120 percent and the largest increase occurred between 1955 and 1965. Labor efficiency is up nearly 400 percent even though there was practically no change from 1975 to 1985. The operating cost of producing milk has increased more than 500 percent with the big jump occurring between 1965 and 1975.

The largest increase is in farm capital invested per farm, up 2,340 percent since 1955. Net farm worth excluding deferred taxes has increased nearly 2,000 percent over the last 40 years. Net farm income per farm has increased 10 fold but return on capital has not improved since 1965. Labor and management income per operator is up only 147 percent in the last 30 years, well below the 280 percent inflation rate.

FOUR YEARS OF TOUGH MANAGEMENT

Recognition and evaluation of the progress that has occurred on DFBS farms can best be achieved by studying the same farms over a period of time. Table 3 presents average data from 176 farms that have been DFBS cooperators each year since 1992.

Net farm income without appreciation in 1995 was 3 percent above the 1992 average even though the average farm milk price dropped 4 percent. Increased production and effective cost control enabled these dairy farmers to maintain reasonable returns on capital and to increase farm net worth during each of the last 4 years. However, returns to labor and management have not improved and growth in net worth after deferred taxes is not keeping pace with inflation. The last 4 years have been a period requiring critical decision making and tough management on New York dairy farms.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1965 - 1995

Selected Factors	1965	1975	1985	1995
Number of farms	673	605	404	321
Size of Business				
Average number of cows	44	72	89	160
Average number of heifers	27	54	73	121
Milk sold, cwt.	5,239	9,386	14,001	32,362
Worker equivalent	1.8	2.4	3.17	4.40***
Total tillable acres	123*	217*	280	399
Rates of Production				
Milk sold per cow, lbs.	11,910	13,036	15,679	20,269
Hay DM per acre, tons	1.9	2.3	2.7	2.8
Corn silage per acre, tons	13.0	14.0	14.3	15.6
Labor Efficiency				
Cows per worker	24	30	28	36***
Milk sold per worker, lbs.	291,100	387,850	442,125	736,269
Cost Control				
Grain & concentrate purchased as % of milk sales	29%	28%	23%	27%
Dairy feed & crop expense per cwt. milk	$1.63	$3.18	$4.13	$4.39
Operating cost of producing cwt. milk	$1.76	$6.00	$9.57	$10.40
Total cost of producing cwt. milk	$4.38	$9.17	$14.23	$13.69
Milk receipts per cwt. milk	$4.41	$8.65	$12.90	$13.03
Capital Efficiency				
Total farm capital	$74,300	$248,400	$516,300	$1,000,300
Farm capital per cow	$1,689	$3,450	$5,801	$6,264
Machinery & equipment per cow	$364	$620	$1,083	$1,098
Real estate per cow	$756	$1,830	$2,726	$2,763
Livestock investment per cow	$382	$700	$1,154	$1,419
Asset turnover ratio	.45	.36	.40	.49
Profitability				
Net farm income without appreciation	$8,000	$16,440	$19,948	$50,593
Net farm income with appreciation	$8,493	$21,415	$21,970	$62,032
Labor & management income per operator/manager	$4,187	$6,534	$2,850	$10,346
Rate return on:				
Equity capital with appreciation	------	5.1%	-1.3%	3.4%
All capital with appreciation	5.2%	5.9%	2.5%	5.1%
All capital without appreciation	4.5%	3.9%	2.9%	4.0%
Financial Summary, End Year				
Farm net worth	$64,650**	$170,100	$325,664	$624,261
Change in net worth with appreciation	------	-----	$-2,351	$26,393
Debt to asset ratio	0.27**	0.35	0.37	0.39
Farm debt per cow	$520**	$1,250	$2,090	$2,381

*Acres of cropland harvested. **Average of 145 dairy farms cooperators submitting financial information.
***Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

Table 3.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 176 New York Dairy Farms, 1992 - 1995

Selected Factors	1992	1993	1994	1995
Milk receipts per cwt. milk	$13.64	$13.21	$13.50	$13.07
Size of Business				
Average number of cows	141	152	162	173
Average number of heifers	107	115	124	130
Milk sold, cwt.	26,933	29,347	33,064	36,086
Worker equivalent	3.95	4.11	4.29	4.60*
Total tillable acres	366	380	391	408
Rates of Production				
Milk sold per cow, lbs.	19,175	19,354	20,479	20,812
Hay DM per acre, tons	3.0	2.9	3.1	2.9
Corn silage per acre, tons	15	16	17	16
Labor Efficiency				
Cows per worker	35	37	38	38*
Milk sold per worker, lbs.	681,522	713,864	770,909	784,100*
Cost Control				
Grain & concentrate purchased as % of milk sales	28%	28%	28%	27%
Dairy feed & crop expense per cwt. milk	$4.68	$4.60	$4.55	$4.29
Operating cost of producing cwt. milk	$10.33	$10.20	$10.40	$10.33
Total cost of producing cwt. milk	$13.91	$13.66	$13.67	$13.51
Hired labor cost per cwt.	$1.92	$1.96	$1.95	$1.89
Interest paid per cwt.	$0.83	$0.81	$0.81	$0.89
Labor & machinery costs per cow	$973	$972	$996	$976
Capital Efficiency				
Farm capital per cow	$6,454	$6,409	$6,427	$6,328
Machinery & equipment per cow	$1,144	$1,132	$1,137	$1,128
Real estate per cow	$2,917	$2,886	$2,868	$2,770
Livestock investment per cow	$1,464	$1,470	$1,500	$1,477
Asset turnover ratio	0.49	0.48	0.51	0.50
Profitability				
Net farm income without appreciation	$58,811	$55,433	$65,722	$60,608
Net farm income with appreciation	$76,613	$67,545	$79,548	$72,200
Labor & management income per operator/manager	$18,863	$14,841	$20,405	$14,876
Rate return on:				
Equity capital with appreciation	6.8%	4.8%	6.2%	4.4%
All capital with appreciation	6.8%	5.4%	6.4%	5.6%
All capital without appreciation	4.8%	4.2%	5.1%	4.6%
Financial Summary, End Year				
Farm net worth	$591,512	$621,449	$663,108	$694,287
Change in net worth with appreciation	$39,710	$28,829	$38,650	$31,433
Debt to asset ratio	0.37	0.38	0.38	0.38
Farm debt per cow	$2,349	$2,385	$2,392	$2,346

*Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics, the number of farms reporting these characteristics, and listing of the average labor, land, and dairy cattle resources used in 1995 are presented in the following table.

Table 4.

BUSINESS CHARACTERISTICS AND RESOURCES USED
321 New York Dairy Farms, 1995

Dairy Livestock (number)	Cows	Heifers
Beginning of Year	152	118
End of Year	168	124
Average for Year	160	121

Type of Business	Number	Percent
Sole Proprietorship	206	64
Partnership	94	29
Corporation	21	7

Barn Type	Number	Percent
Stanchion	135	42
Freestall	159	50
Combination	27	8

Milking System	Number	Percent
Bucket & Carry	1	1
Dumping Station	9	3
Pipeline	146	45
Herringbone	126	39
Other Parlor	39	12

Milking Frequency	Number	Percent
2 times per day	239	74
3 times per day	63	20
Other	19	6

Business Records	Number	Percent
Account Book	93	29
Agrifax (mail-in)	44	14
On-Farm Computer	125	39
Other	59	18

Dairy Records	Number	Percent
D.H.I.C.	232	72
Owner Sampler	28	9
Other	30	9
None	31	10

bST Usage	Number	Percent
Used on <25% of herd	42	13
Used on 25-75% of herd	100	31
Used on >75% of herd	8	2
Stopped using in 1995	21	7
Not used in 1995	150	47

Labor Force	Average	Percent
Operators	20.44	39
Family Paid	4.59	9
Family Unpaid	2.69	5
Hired	25.03	47
Total Months	52.75	100

	Average
Operators (total = 500)	1.56
Age	44
Education	14 years
Estimated Value of Labor & Management	$37,523

	Farms Reporting	
Land Used	Number	Average
Total acres:		
Owned	321	396
Rented	297	199
Tillable acres:		
Owned	321	233
Rented	293	182
Total	321	399

There were 500 full-time operator equivalents on the 321 dairy farms for an average of 1.56 operators per farm. The operators averaged 44 years of age and 14 years of formal education. Additional data on the labor force is in Table 42.

All 321 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 293 of the dairy farm owners rented an average of 182 acres of tillable land in 1995. The 321 farms averaged 396 total tillable acres per farm of which 166 acres were rented. Tables 21 and 27 contain additional information on land use and the dairy herd.

Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses and are used to measure annual receipts, expenses, and farm profitability more accurately. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting procedures consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets are included in the return to farm capital, but excluded from the return to labor and management.

Income Statement - Expenses

The accrual income statement on the following page begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.

2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain roughage are not included in cash and accrual feed expenses.

3. Machinery costs represent all the operating costs of using power machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs.

4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.

5. Crop expenses include the costs of fertilizer, lime, seeds, spray and other crop supplies.

6. Real estate expenses are the direct costs associated with owning and maintaining farmland and buildings.

7. Other includes insurance, the farm share of utilities, interest paid on all farm indebtedness and miscellaneous costs.

8. Expansion livestock is a nonoperating cost included in total expenses.

9. Depreciation of machinery and buildings are nonoperating costs included in total expenses. Depreciation charges are based on income tax.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 321 farms averaged $1,059 per day and 90 percent of total farm accrual expenses.

Table 5.

CASH AND ACCRUAL FARM EXPENSES
321 New York Dairy Farms, 1995

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
Hired Labor	$ 57,224		$-109 <<		$ 228		$ 57,561	15
Feed								
Dairy grain & concentrate	113,730		-138		1,681		115,549	30
Dairy roughage	3,914		-153		28		4,095	1
Nondairy livestock	142		2		0		140	<1
Machinery								
Machinery hire, rent & lease	5,993		62 <<		208		6,139	2
Machinery repairs & farm vehicle exp.	21,076		63		389		21,402	6
Fuel, oil & grease	8,774		3		66		8,837	2
Livestock								
Replacement livestock	4,740		0 <<		-56		4,684	1
Breeding	4,913		-28		61		5,002	1
Veterinary & medicine	12,643		55		17		12,605	3
Milk marketing	22,731		-5 <<		-19		22,717	6
Bedding	4,934		122		60		4,872	1
Milking Supplies	10,430		94		50		10,386	3
Cattle lease & rent	701		0 <<		-3		698	<1
Custom boarding	2,677		0 <<		40		2,717	1
Other livestock expense	11,525		87		-85		11,353	3
Crops								
Fertilizer & lime	10,348		312		21		10,057	3
Seeds & plants	6,043		115		49		5,977	2
Spray & other crop expense	6,616		270		185		6,531	2
Real Estate								
Land, building & fence repair	5,239		73		28		5,194	1
Taxes	8,934		-14 <<		-146		8,802	2
Rent & lease	7,554		25 <<		127		7,656	2
Other								
Insurance	5,621		29 <<		6		5,598	1
Utilities	12,276		32 <<		88		12,332	3
Interest paid	30,354		0 <<		118		30,472	8
Miscellaneous	5,232		-5		40		5,277	1
Total Operating	$ 384,364		$892		$ 3,181		$ 386,653	100
Expansion livestock	$ 9,025		0 <<		0		$ 9,025	
Machinery depreciation							$ 19,347	
Building depreciation							$ 15,065	
TOTAL ACCRUAL EXPENSES							$ 430,090	

Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and inputs purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory decreased $138.

Prepaid expenses (noted by « in the table on page 8) are advance payments made for services and noninventory items. For example, advance payments for rent increased an average of $25 per farm in 1995, and that increase is subtracted from cash rent to determine the correct 1995 accrual rental expense.

Changes in accounts payable reflect supplies/services used in this year's production but not paid for (positive change), and payments for production inputs used in a prior year (negative change).

Accrual expenses are cash expenses adjusted for changes in inventory, prepaid expenses and accounts payable. They are the total costs of inputs actually used in this year's business. Total change in inventory and prepaid expenses equals $892, and total change in accounts payable equals $3,181.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged $454,627 per farm. Total accrual receipts averaged $480,683 per farm. Accrual receipts were greater than cash receipts due primarily to dairy herd growth and increases in crop inventory. Cow numbers increased an average of 13 head per farm and the homegrown feed inventory per farm increased $4,641. Homegrown feed inventory per cow decreased $7 from beginning to end of year.

Table 6.

CASH AND ACCRUAL FARM RECEIPTS
321 New York Dairy Farms, 1995

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	$ 417,233				$ 4,330		$ 421,563	88
Dairy cattle	18,871		$ 16,857		–9		35,719	7
Dairy calves	4,310				0		4,310	1
Other livestock	710		125		31		866	<1
Crops	3,265		4,641		110		8,016	2
Government receipts	5,691		-56*		-167		5,468	1
Custom machine work	539				28		567	<1
Gas tax refund	330				8		338	<1
Other	3,678				158		3,836	1
- Nonfarm noncash capital**			(-) 0				(-) 0	
Total	$ 454,627		$ 21,567		$ 4,489		$ 480,683	100

*Change in advanced government receipts.
**Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received for the sale of farm products, services and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are accounted for. Changes in advanced government receipts are the amount of government payments received for participating in a future year's program have changed from 1994 to 1995. An increase requires a negative adjustment to cash receipts while a decrease is a positive adjustment. Changes in accounts receivable include the difference between the January milk check for December 1995 marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business. Gifts and inheritances of machinery and real estate are accounted for in Table 14.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

Table 8.

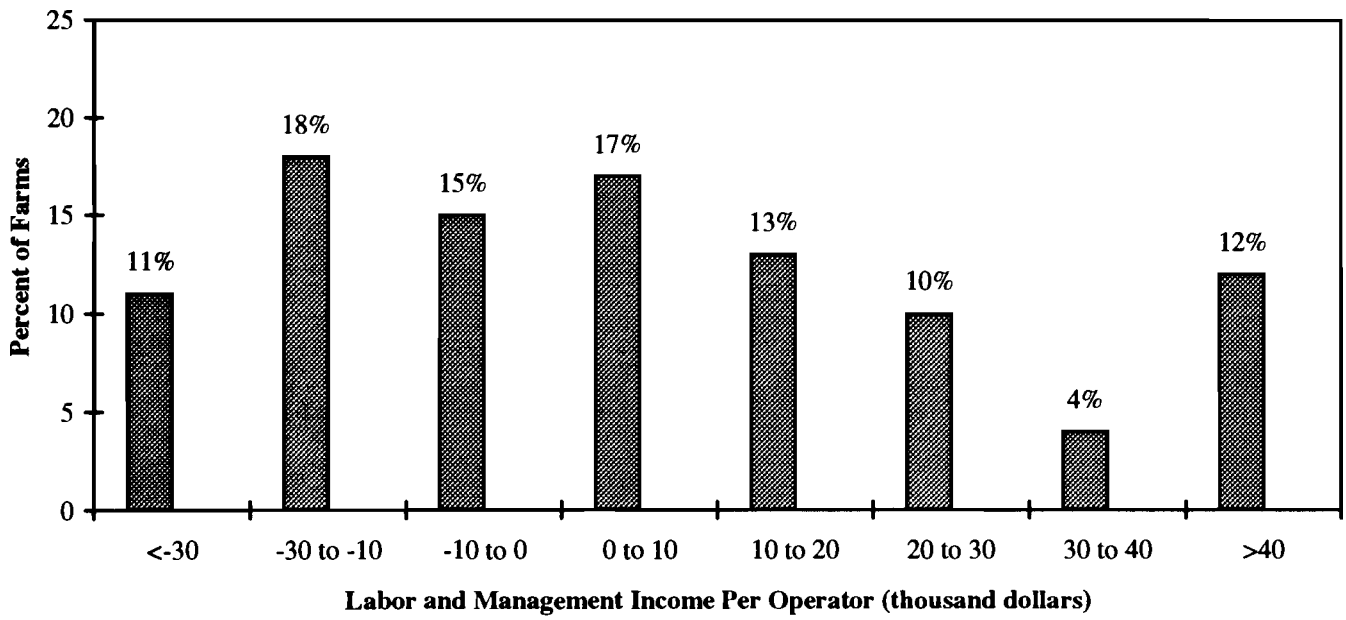
LABOR AND MANAGEMENT INCOME
321 New York Dairy Farms, 1995

Item	Average 321 Farms		Average Top 10% Farms
Net farm income without appreciation	$ 50,593		$ 185,589
- Family labor unpaid @ $1,450 per month	$ 3,901		$ 1,595
- Real interest @ 5% on $611,065 equity capital for average & $998,362 for the top 10%	30,553		49,918
= Labor & Management Income (1.56 operators)	$ 16,139	(1.68)	$ 134,076
Labor & Management Income per Operator	$ 10,346		$ 79,807

Labor and management income per operator averaged $10,346 on these 321 dairy farms in 1995. The range in labor and management income per operator was from less than -$97,000 to more than $447,000. Returns to labor and management were negative on 44 percent of the farms. Labor and management income per operator ranged from $0 to $19,999 on 30 percent of the farms while 26 percent showed labor and management incomes of $20,000 or more per operator.

Chart 1.

DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR
321 New York Dairy Farms, 1995



Return to equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner/operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s') labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Return to all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on average total capital.

Table 9.

RETURN TO CAPITAL
321 New York Dairy Farms, 1995

Item	Average 321 Farms	Average Top 10% Farms
Net farm income with appreciation	$ 62,032	$ 208,876
- Family labor unpaid at $1,450 per month	3,901	1,595
- Value of operators' labor & management	37,523	47,125
= Return to equity capital with appreciation	$ 20,608	$ 160,156
+ Interest paid	30,472	78,260
= Return to all capital with appreciation	$ 51,080	$ 238,416
Return to equity capital without appreciation	$ 9,169	$ 136,869
Return to all capital without appreciation	$ 39,641	$ 215,129
Rate of return on average equity capital:		
with appreciation	3.4%	16.0%
without appreciation	1.5%	13.7%
Rate of return on all capital:		
with appreciation	5.1%	12.3%
without appreciation	4.0%	11.1%

Return to all labor and management is another measure of profitability of a business that can be calculated. It is calculated by adding the charge for unpaid family labor and the hired labor expense to labor and management income. Table 10 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 10.

RETURNS TO ALL LABOR AND MANAGEMENT BY RETURN TO ALL CAPITAL WITH APPRECIATION
321 New York Dairy Farms, 1995

	Quartile by Return to All Capital With Appreciation			
Item	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	$ -25,307	$ 5,680	$ 33,351	$ 192,314
Rate of return on all capital with appreciation	-4.4%	1.0%	3.9%	9.5%
Total returns to all labor & management	$ -1,819	$ 18,625	$ 52,418	$ 241,964
Worker equivalent	3.15	2.64	3.70	8.09
Return per worker equivalent	$ -577	$ 7,055	$ 14,167	$ 29,909
Returns/hour (3,000 hours/worker/year)	$ -0.19	$ 2.35	$ 4.72	$ 9.97

Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities and fill out the balance sheet. The second step is to analyze the complete balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 11.

1995 FARM BUSINESS AND NONFARM BALANCE SHEET
321 New York Dairy Farms, 1995

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current			Current		
Farm cash, checking & savings	$ 7,024	$ 7,647	Accounts payable	$ 13,485	$ 16,668
Accounts receivable	29,436	33,925	Operating debt	18,046	20,131
Prepaid expenses	869	889	Short term	5,254	5,524
Feed & supplies	84,741	90,254	Advanced gov't. receipt	47	103
Total Current	$ 122,070	$ 132,715	Current portion:		
			Intermediate	26,032	28,375
			Long term	9,319	9,881
			Total Current	$ 72,183	$ 80,682
Intermediate			Intermediate		
Dairy Cows:			Structured debt		
owned	$ 158,534	$ 169,543	1-10 years	$ 137,186	$ 141,278
leased	788	1,472	Financial lease		
Heifers	70,286	72,059	(cattle & machinery)	7,253	8,682
Bulls & other livestock	2,009	2,058	Farm Credit stock	4,959	4,907
Mach. & equip. owned	165,664	171,519	Total Intermediate	$ 149,398	$ 154,867
Mach. & equip. leased	6,465	7,210			
Farm Credit stock	4,959	4,907	Long Term		
Other stock & certificates	12,462	13,259	Structured debt		
Total Intermediate	$ 421,167	$ 442,027	≥ 10 years	$ 154,620	$ 162,540
Long Term			Financial lease		
Land & buildings:			(structures)	2,258	1,921
owned	$ 430,832	$ 447,608	Total Long Term	$ 156,878	$ 164,461
leased	2,258	1,921			
Total Long Term	$ 433,090	$ 449,529	Total Farm Liabilities	$ 378,459	$ 400,010
Total Farm Assets	$ 976,327	$ 1,024,271	FARM NET WORTH	$ 57,868	$ 624,261

Nonfarm Assets*	Jan.1	Dec. 31	Nonfarm Liabilities* & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	$ 7,565	$ 6,021	Nonfarm Liabilities	$ 5,451	$ 5,521
Cash value life insurance	9,001	9,965	NONFARM NET WORTH	$ 65,760	$ 68,223
Nonfarm real estate	27,002	28,535			
Auto (personal share)	4,065	4,291	FARM & NONFARM**	Jan. 1	Dec. 31
Stocks & bonds	6,001	7,558	Total Assets	$ 1,047,538	$ 1,098,015
Household furnishings	9,707	10,131	Total Liabilities	383,910	405,531
All other	7,869	7,243			
Total Nonfarm	$ 71,211	$ 73,744	TOTAL FARM & NON-FARM NET WORTH	$ 663,628	$ 692,484

*Average of 184 farms completing the nonfarm balance sheet.
**Sum of average farm values for 321 farms and nonfarm values for 184 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to make the payments. The present values are also listed as assets, representing the future value the item has to the business.

The following condensed balance sheet, including deferred taxes, contains average data from only those farmers who elected to provide the additional information required to compute deferred taxes. This was the third year this information was collected, therefore this data should not be considered representative of all DFBS farms.

Deferred taxes represent an estimate of the taxes that would be paid if the farm were sold at year-end fair market values. Accuracy is dependent on the accuracy of the market values and the tax basis data provided. Any tax liability for assets other than livestock, machinery, land, buildings and nonfarm assets is excluded. It is assumed that all gain on purchased livestock and machinery is ordinary gain and that listed market values are net of selling costs. The effects of investment tax credit carryover and recapture, carryover of operating losses, alternative minimum taxes and other than average exemptions and deductions are excluded because they have only minor influence on the taxes of most farms. However, they could be important in individual situations.

Table 12.

CONDENSED BALANCE SHEET INCLUDING DEFERRED TAXES
December 31, 1995
11 New York Dairy Farms, 1995

Assets			Liabilities & Net Worth		
			Current debts & payables	$	95,207
			Current deferred taxes		76,367
Total Current Assets	$	128,267	Total Current Liabilities	$	171,574
			Intermediate debts & leases	$	132,835
			Intermediate deferred taxes		124,500
Total Intermediate Assets	$	470,523	Total Intermediate Liabilities	$	257,335
			Long term debts & leases	$	142,392
			Long term deferred taxes		68,412
Total Long Term Assets	$	427,795	Total Long Term Liab.	$	210,804
TOTAL FARM ASSETS	$	1,026,585	TOTAL FARM LIABILITIES	$	639,713
			Farm Net Worth	$	386,872
			Percent Equity (Farm)		38%
			Nonfarm debts	$	55
			Nonfarm deferred taxes		12,287
Total Nonfarm Assets	$	49,423	Total Nonfarm Liabilities	$	12,842
TOTAL ASSETS	$	1,076,008	TOTAL LIABILITIES	$	652,555
			Total Net Worth	$	423,453
			Percent Equity (Total)		39%

Deferred taxes are listed as current, intermediate and long term farm liabilities and nonfarm liabilities in Table 10. Total farm deferred taxes averaged $269,279 per farm and 29 percent of total farm assets on these 11 moderate-sized dairy farms. Total deferred taxes averaged $281,566 and accounted for 43 percent of total debt.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. Debt levels per unit of production include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 13.

FARM BALANCE SHEET ANALYSIS
321 New York Dairy Farms, 1995

Item	Average 321 Farms	Average Top 10% Farms
Farm Financial Ratios:		
Percent equity	61%	53%
Debt/asset ratio: total	.39	.47
long term	.37	.51
intermediate & current	.41	.45
Farm Debt Analysis:		
Accounts payable as % of total debt	4%	3%
Long term liab. as % of total debt	41%	43%
Current & intermediate liabilities as % of total debt	59%	57%

Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$2,381	$1,717	$2,578	$2,524
Long term debt	979	706	1,101	1,078
Intermediate & long term	1,901	1,371	2,052	2,009
Intermediate & current debt	1,402	1,011	1,477	1,446

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 14.

FARM INVENTORY BALANCE
321 New York Dairy Farms, 1995

Item	Real Estate		Machinery & Equipment		Livestock
Value beginning of year		$ 430,832		$ 165,664	$ 230,829
Purchases	$ 29,438*		$ 23,824		
+ nonfarm noncash transfer**	170		65		
- Lost capital	8,648				
- Net sales	1,903		1,078		
- Depreciation	15,065		19,347		
= Net Investment		3,992		3,464	16,982
+ Appreciation		12,783		2,391	-4,150
Value end of year		$ 447,608		$ 171,519	$ 243,661

*$5,686 land and $23,752 buildings and/or depreciable improvements.
**Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are interrelated and consistent (in accountants' terms they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows the farmer to determine to what degree the changes in equity was caused by (1) earning from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings are an excellent indicator of farm generated financial progress.

Table 15.

STATEMENT OF OWNER EQUITY (RECONCILIATION)
321 New York Dairy Farms, 1995

Item	Average 321 Farms		Average Top 10% Farms	
Beginning of year farm net worth		$ 597,868		$ 928,185
Net farm income without appreciation	$ 50,593		$ 185,589	
+ Nonfarm cash income	6,977		2,892	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	39,794		61,712	
RETAINED EARNINGS		+ $ 17,776		+ $ 126,769
Nonfarm noncash transfers to farm	$ 235		$ 1,210	
+ Cash used in business from nonfarm capital	6,527		11,100	
- Note or mortgage from farm real estate sold (nonfarm)	351		0	
CONTRIBUTED/WITHDRAWN CAPITAL		+ $ 6,411		+ $ 12,310
Appreciation	$ 11,439		$ 23,287	
- Lost capital	8,648		22,213	
CHANGE IN VALUATION EQUITY		+ $ 2,791		+ $ 1,074
IMBALANCE/ERROR		- $ 582		- $ -199
End of year farm net worth*		$ 624,261		$ 1,068,538
Change in Net Worth				
Without appreciation		$14,954		$117,066
With appreciation		$26,393		$140,353

*May not add due to rounding.

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows including beginning and end balances are included. Therefore the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Table 16.

ANNUAL CASH FLOW STATEMENT
321 New York Dairy Farms, 1995

Item		Average 321 Farms	
Cash Flow from Operating Activities			
Cash farm receipts	$ 454,627		
- Cash farm expenses	384,364		
= Net cash farm income		$ 70,262	
Nonfarm income	$ 6,977		
- Personal withdrawals & family expenses including nonfarm debt payments	40,285		
+ Net cash nonfarm income		$ -33,308	
= Net Provided by Operating Activities			$ 36,954
Cash Flow From Investing Activities			
Sale of assets: machinery	$ 1,078		
+ real estate	1,552		
+ other stock & certificates	652		
= Total asset sales		$ 3,282	
Capital purchases: expansion livestock	$ 9,025		
+ machinery	23,824		
+ real estate	29,438		
+ other stock & certificates	1,034		
- Total invested in farm assets		$ 63,321	
+ Net Provided by Investment Activities			$ -60,039
Cash Flow From Financing Activities			
Money borrowed (intermediate & long term)	$ 64,864		
+ Money borrowed (short term)	3,643		
+ Increase in operating debt	2,085		
+ Cash from nonfarm capital used in business	6,527		
+ Money borrowed - nonfarm	491		
= Cash inflow from financing		$ 77,610	
Principal payments (intermediate & long term)	$ 49,947		
+ Principal payments (short term)	3,373		
+ Decrease in operating debt	0		
- Cash outflow for financing		$ 53,320	
= Net Provided by Financing Activities			$ 24,290
Cash Flow From Reserves			
Beginning farm cash, checking & savings		$ 7,024	
- Ending farm cash, checking & savings		$ 7,647	
= Net Provided from Reserves			$ -623
Imbalance (error)			$ 582

Table 17.

ANNUAL CASH FLOW BUDGETING DATA
321 New York Dairy Farms, 1995

Item	Average 321 Farms Total	Per Cow	Per Cwt.	Average Top 10% Farms Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		160	32,362		347	74,720
Accrual Operating Receipts						
Milk	$ 421,563	$2,640	$ 13.03	$ 970,207	$ 2,798	$ 12.98
Dairy cattle	35,719	224	1.10	103,310	298	1.38
Dairy calves	4,310	27	0.13	10,108	29	0.14
Other livestock	866	5	0.03	3,713	11	0.05
Crops	8,016	50	0.25	38,107	110	0.51
Miscellaneous receipts	10,208	64	0.32	18,560	54	0.25
Total	$ 480,683	$3,010	$ 14.85	$ 1,144,005	$ 3,299	$ 15.31
Accrual Operating Expenses						
Hired labor	$ 57,561	$360	$ 1.78	$ 158,578	$ 457	$ 2.12
Dairy grain & concentrate	115,549	724	3.57	252,144	727	3.37
Dairy roughage	4,095	26	0.13	10,393	30	0.14
Nondairy feed	140	1	0.01	308	1	0.01
Machinery hire, rent & lease	6,139	38	0.19	12,375	36	0.17
Machinery repairs & vehicle expense	21,402	134	0.66	38,915	112	0.52
Fuel, oil & grease	8,837	55	0.27	16,427	47	0.22
Replacement livestock	4,684	29	0.15	6,712	19	0.09
Breeding	5,002	31	0.15	9,744	28	0.13
Vet & medicine	12,605	79	0.39	29,733	86	0.40
Milk marketing	22,717	142	0.70	45,711	132	0.61
Bedding	4,872	31	0.15	13,671	39	0.18
Milking supplies	10,386	65	0.32	21,489	62	0.29
Cattle lease	698	4	0.02	3,642	11	0.05
Custom boarding	2,717	17	0.08	3,961	11	0.05
Other livestock expense	11,353	71	0.35	26,238	76	0.35
Fertilizer & lime	10,057	63	0.31	19,404	56	0.26
Seeds & plants	5,977	37	0.18	12,776	37	0.17
Spray/other crop expense	6,531	41	0.20	14,426	42	0.19
Land, building & fence repair	5,194	33	0.16	10,829	31	0.14
Taxes	8,802	55	0.27	12,813	37	0.17
Real estate rent & lease	7,656	48	0.24	21,720	63	0.29
Insurance	5,598	35	0.17	8,185	24	0.11
Utilities	12,333	77	0.38	24,078	69	0.32
Miscellaneous	5,277	33	0.16	11,070	32	0.15
Total Less Interest Paid	$ 356,183	$2,230	$ 11.00	$ 785,343	$ 2,265	$ 10.51
Net Accrual Operating Income (without interest paid)	$ 124,500	$780	$ 3.85	$ 358,662	$ 1,034	$ 4.80
- Change in livestock & crop inventory	21,567	135	0.67	95,157	274	1.27
- Change in accounts receivable	4,489	28	0.14	14,688	42	0.20
- Change in feed & supply inventory	892	6	0.03	13,890	40	0.19
+ Change in accounts payable*	3,063	19	0.09	-711	-2	-0.01
NET CASH FLOW	$ 100,615	$630	$ 3.11	$ 234,216	$ 676	$ 13.13
- Net personal withdrawals & family exp.	32,817	205	1.01	58,820	170	0.79
Available for Farm Debt Payments & Invest.	$ 67,798	$425	$ 2.09	$ 175,396	$ 506	$ 2.35
- Farm debt payments	82,584	517	2.55	202,233	583	2.71
Cash available for Farm Investments	$ -14,786	$-92	$ -0.46	$ -26,837	$ -77	$ -0.36

*Exclude change in interest account payable.

Repayment Analysis

The second step in cash flow planning is to compare and evaluate debt payments planned and made last year, and estimate the payments required in the current year. It is helpful to compare and evaluate a farm's repayment position by using debt payments per unit of production and receipt/debt payment ratios. The data below are for farms that completed summaries for both 1994 and 1995.

Table 18.

FARM DEBT PAYMENTS PLANNED
New York Dairy Farms, 1995

	Same 246 Dairy Farms			Average Top 10% Farms		
	1995 Payments		Planned	1995 Payments		Planned
Debt Payments	Planned	Made	1996	Planned	Made	1996
Long term	$ 24,850	$ 32,311	$ 26,390	$ 68,946	$ 83,945	$ 66,716
Intermediate term	40,917	53,460	43,222	81,182	116,159	90,192
Short term	3,210	3,841	3,227	4,310	3,815	4,766
Operating (net reduction)	2,511	0	4,112	1,210	0	2,167
Accts. payable (net reduction)	2,652	0	1,695	3,396	318	2,500
Total	$ 74,140	$ 89,612	$ 78,646	$ 159,044	$ 204,237	$ 166,341
Per cow	$ 436	$ 527		$ 452	$ 580	
Per cwt. 1995 milk	$ 2.13	$ 2.58		$ 2.09	$ 2.68	
% of 1995 milk receipts	16%	20%		16%	21%	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payments. The ratio shows the number of times the amount available for debt service in 1995 covered debt payments planned for 1995 (as of December 31, 1994).

Table 19.

CASH FLOW COVERAGE RATIO
New York Dairy Farms, 1995

Item	Same 246 Dairy Farms	Average Top 10% Farms
Cash farm receipts	$ 489,769	$ 1,052,063
- Cash farm expenses	414,030	893,363
+ Interest paid	31,925	78,050
- Net personal withdrawals from farm*	35,137	59,039
(A) = Amount Available for Debt Service	$ 72,527	$ 177,711
(B) = Debt Payments Planned for 1995	74,140	159,044
(A ÷ B) = Cash Flow Coverage Ratio for 1995	0.98	1.12

*Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the cash flow coverage ratio will be incorrect.

A debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 28 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 20.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE
246 New York Dairy Farms, 1995

	Cash Flow Coverage Ratio (Farm & Nonfarm)			
Debt/Asset Ratio	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	14.6	13.4	15.5	11.8
40 to 70%	7.7	23.6	7.7	2.9
70% & over	0.0	1.6	0.8	0.4

Cropping Program Analysis

The cropping program is an important part of the dairy farm business that sometimes is overlooked and neglected. A complete evaluation of available land resources, how they are being used, how well crops are producing and what it costs to produce them, is required to evaluate alternative cropping and feed purchase choices.

Table 21.

LAND RESOURCES AND CROP PRODUCTION
321 New York Dairy Farms, 1995

Item	Average 321 Farms			Average Top 10% Farms		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	233	166	399	381	316	698
Nontillable	51	11	62	51	7	58
Other nontillable	112	7	119	111	0	111
Total	396	184	580	543	324	867

Crop Yields	Farms	Acres	Prod/Acre	Farms	Acres	Prod/Acre
Hay crop	316	200	2.9 tn DM	31	297	3.9 tn DM
Corn silage	296	127	15.6 tn	31	254	18.0 tn
			5.3 tn DM			6.3 tn DM
Other forage	35	34	1.5 tn DM	5	19	1.8 tn DM
Total forage	318	321	3.7 tn DM	31	554	4.9 tn DM
Corn grain	147	88	114 bu	19	156	122 bu
Oats	39	30	53 bu	5	44	62 bu
Wheat	21	50	56 bu	6	70	53 bu
Other crops	58	58		8	62	
Tillable pasture	104	39		10	57	
Idle	90	36		8	35	

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but 5 of the 321 farms produced hay or hay crop silage in 1995. Ninety-two percent produced corn silage, 46 percent grew and harvested corn grain, and 12 percent grew oats for grain. Although 104 farms used tillable pasture in 1995, only 60 farms reported using rotational grazing.

Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent.

Crop acres represent planting, therefore, unharvested acres are reflected in low yields per acre.

The following measures of crop management indicate how efficiently the land resource is being used and how well total forage requirements are being met.

Table 22.

CROP MANAGEMENT FACTORS
321 New York Dairy Farms, 1995

Item	Average 321 Farms	Average Top 10% Farms
Total tillable acres per cow	2.50	1.99
Total forage acres per cow	1.99	1.55
Harvested forage dry matter, tons per cow	7.40	7.64

In the third year of collecting information on pasture costs, 20 cooperators provided pasture-related expenses. One hundred fifteen cooperators allocated direct crop related expenses to hay crop, corn and other crop production. The data in Table 23 have been compiled to show the average crop related production expenses per acre and per unit for these crops and for pasture. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 23, the total per tillable acre represents all 321 farms, the expenses for hay and corn crops are for the 115 farms, and the pasture costs are for the 20 farms which submitted data.

Table 23.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 1995

	Average 321 Farms	Average 115 Farms Reporting Crop Costs					Average 20 Farms Pasture	
	Total per Tillable	Hay Crop		All Corn	Corn Silage	Corn Grain	Per Till.	Per Total
Espenses	Acre	Per Acre	Per Ton DM	Per Acre	Per Ton DM	Per Dry Shell Bu.	Acre	Acre
Fertilizer & lime	$25.21	$16.57	$5.61	$39.91	$7.48	$0.33	$37.72	$10.99
Seeds & plants	14.95	8.89	3.01	27.15	5.09	0.23	3.72	1.08
Spray & other crop exp.	16.37	3.85	1.30	36.49	6.84	0.30	3.70	1.08
Total	$56.56	$29.31	$9.92	$103.55	$19.41	$0.86	$45.14	$13.15
Ave. Top 10% Farms:		Average 14 Farms Reporting Crop Costs						
Fertilizer & lime	$28.08	$16.11	$3.85	$32.30	$5.46	$0.24		
Seeds & plants	18.49	8.20	1.96	30.79	5.20	0.23		
Spray & other crop exp.	20.88	4.56	1.09	43.36	7.33	0.32		
Total	$67.45	$28.87	$6.90	$106.45	$17.99	$0.79		

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

Table 24.

ACCRUAL MACHINERY EXPENSES
321 New York Dairy Farms, 1995

	Average 321 Farms		Average Top 10% Farms	
Machinery Expense Item	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	$8,838	$22.15	$16,426	$23.77
Machinery repairs & vehicle expense	21,402	53.64	38,915	56.32
Machine hire, rent & lease	6,139	15.39	12,375	17.91
Interest (5%)	8,430	21.13	14,967	21.66
Depreciation	19,347	48.49	37,771	54.66
Total	$64,156	$160.79	$120,454	$174.32

Table 25.

CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE
115 New York Dairy Farms, 1995

Item	Tons of Hay Crop Dry Matter Per Acre				
	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.5	2.2	2.7	3.3	4.4
Farms reporting crop expense breakdowns	25	23	23	14	30
Average number hay crop acres for farms reporting	173	162	211	202	233
Accrual Crop Expenses Per Acre of Hay Crop:					
Fertilizer & lime	$ 12.87	$ 14.42	$ 19.76	$ 12.97	$ 19.26
Seeds & plants	7.49	9.85	10.11	8.03	8.75
Spray & other crop expenses	1.92	1.96	5.89	4.60	4.48
Total	$ 22.28	$ 25.96	$ 35.76	$ 25.60	$ 32.49
Accrual Crop Expense Per Ton DM of Hay Crop:					
Fertilizer & lime	$ 8.80	$ 6.23	$ 7.34	$ 3.98	$ 4.51
Seeds & plants	5.13	4.26	3.75	2.46	2.05
Spray & other crop expenses	1.31	0.73	2.19	1.41	1.05
Total	$ 15.24	$ 11.22	$ 13.28	$ 7.85	$ 7.61

Table 26.

CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
115 New York Dairy Farms, 1995

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	<13	13-18	≥18	<88	88-113	≥113
Corn yield per acre	103	15.5	19.9	66	102	131
Farms reporting crop expense breakdowns	34	48	31	9	18	35
Average number corn acres for farms reporting	159	163	214	240	157	270
Accrual Crop Expense/Acre of Corn						
Fertilizer & lime	$ 42.77	$ 39.93	$ 37.50	$ 45.49	$ 52.64	$ 35.71
Seeds & plants	22.05	27.82	30.46	20.41	26.64	27.76
Spray & other crop expenses	33.79	32.78	43.09	36.40	33.67	37.46
Total	$ 98.61	$ 100.53	$ 111.05	$ 102.30	$ 112.95	$ 100.93
Accrual Crop Expense Per:*	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	$ 11.12	$ 7.56	$ 5.63	$ 0.63	$ 0.52	$ 0.27
Seeds & plants	5.74	5.26	4.58	0.28	0.27	0.21
Spray & other crop expense	8.79	6.20	6.47	0.50	0.33	0.28
Total	$ 25.65	$ 19.02	$ 16.68	$ 1.41	$ 1.12	$ 0.76

*Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop.

From the above two tables, it is important to observe that as forage yields per acre increase, crop related expenses per acre generally also increase. For corn silage and corn grain, crop expense per ton of dry matter and per bushel are highest at the low levels of production. Hay crop expenses per ton of dry matter decrease substantially as yields exceed 3.0 tons per acre. The lower dry matter costs on the farms with greater than 3.0 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

Dairy Program Analysis

An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. This increase in inventory is included as an accrual farm receipt when calculating profitability with and without appreciation.

Table 27.

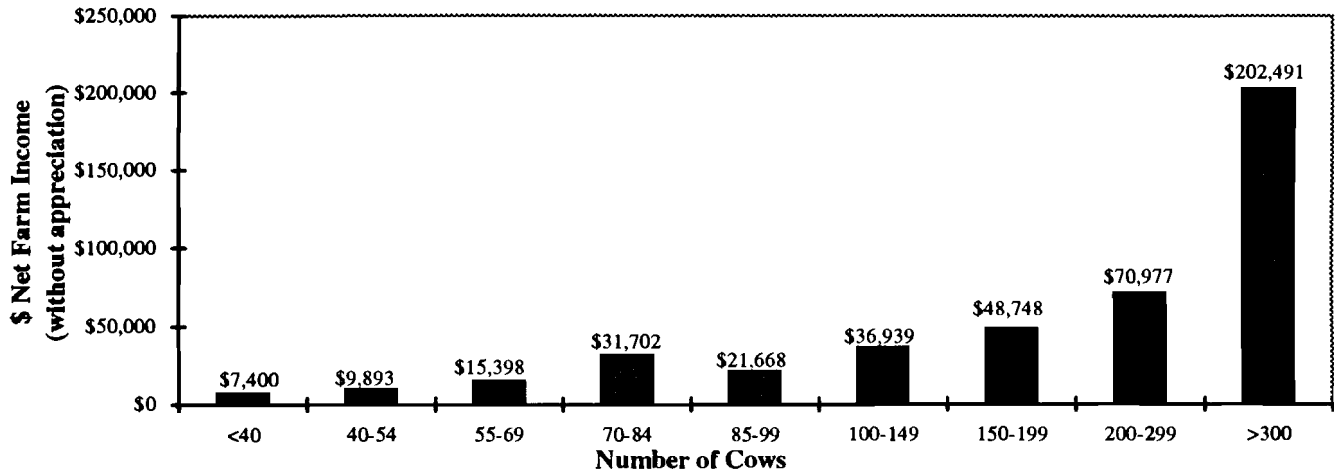
DAIRY HERD INVENTORY
321 New York Dairy Farms, 1995

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	152	$ 158,534	44	$ 39,397	40	$ 21,366	34	$ 9,522
+ Change w/o apprec.		13,657		1,044		1,948		210
+ Appreciation		-2,648		-657		-576		-194
End year (owned)	165	$ 169,543	45	$ 39,784	44	$ 22,738	35	$ 9,538
End including leased	168							
Average number	160		121	(all age groups)				
Average Top 10% Farms:								
Beg. year (owned)	314	$ 333,524	94	$ 82,242	73	$ 41,170	77	$ 23,739
+ Change w/o apprec.		44,126		6,980		13,404		342
+ Appreciation		-1,540		-1,060		-1,241		-343
End year (owned)	356	$ 376,110	99	$ 88,162	98	$ 53,333	80	$ 23,738
End including leased	373							
Average number	347		261	(all age groups)				

There is a strong relationship between farm size and farm income on well managed dairy farms. When data are sorted by herd size categories this relationship becomes apparent as shown in Chart 2. Net farm income increased $195,091 while labor and management income per operator jumped $55,985 as herd size increased from less than 40 to over 300 cows per farm. For more information on herd size comparisons, see pages 42-51.

Chart 2.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
321 New York Dairy Farms, 1995



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year.

Table 28.

MILK PRODUCTION
321 New York Dairy Farms, 1995

Item	Average 321 Farms	Average Top 10% Farms
Total milk sold, lbs.	3,236,210	7,472,029
Milk sold per cow, lbs.	20,269	21,547
Average milk plant test, percent butterfat	3.66	3.63

Farms with higher rates of production tend to have higher profits. In 1995, most of the farms that sold more than 20,000 pounds of milk per cow had above average profit margins.

Table 29.

MILK SOLD PER COW AND FARM INCOME MEASURES
321 New York Dairy Farms, 1995

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 14,000	18	58	$1,425	$25	$-14,363
14,000 to 15,999	36	78	19,649	252	-4,288
16,000 to 16,999	23	105	18,483	176	-4,054
17,000 to 17,999	31	102	29,959	294	3,721
18,000 to 18,999	49	116	30,294	261	445
19,000 to 19,999	46	140	29,222	209	1
20,000 to 20,999	32	172	58,933	343	15,343
21,000 to 21,999	40	331	106,338	321	28,503
22,000 & over	46	239	112,720	472	33,815

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 29 above and is diagrammed in Charts 3 and 4 on page 25. Each spot on each scatter diagram represents one of the 321 farms.

Data in Chart 3 and Table 29 show that as milk sold per cow increased from 8,000 to 18,000 pounds, there was little increase in net farm income and the variation was $150,000 or less at each production level. As milk output exceeded 19,000 pounds per cow, average net farm income increased rapidly and net farm income variability exceeded $400,000 at some levels of milk output.

The relationship between milk output per cow and net farm income per cow is presented in Chart 4 and Table 29. Profitability measured as net farm income per cow rather than per farm removes the influence of herd size and also shows a positive relationship with milk sold per cow. Seven of the nine farms that achieved $1,000 or more of net farm income per cow sold between 20,000 and 24,000 pounds of milk per cow.

Chart 3.

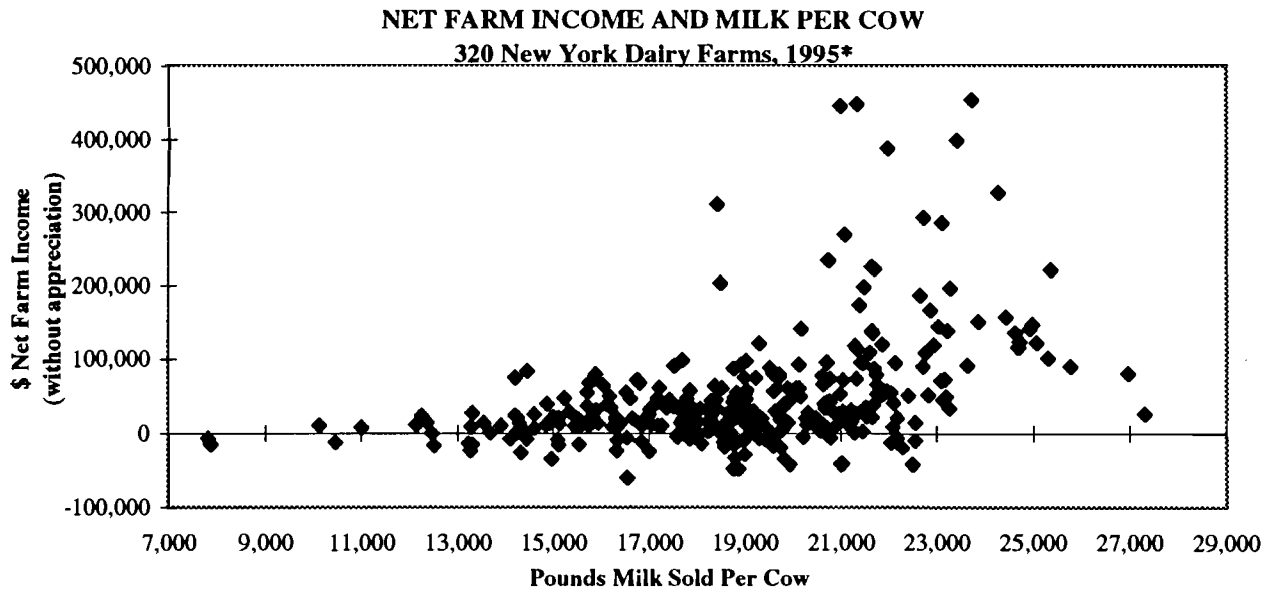
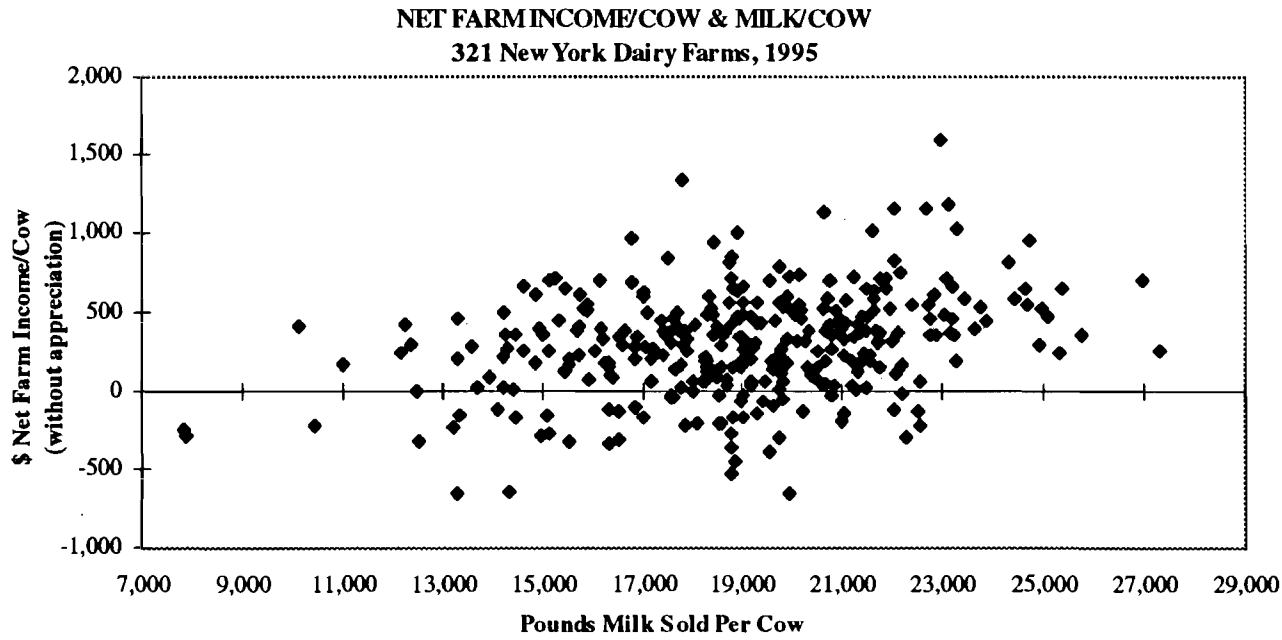


Chart 4.



*Farms with net farm incomes exceeding $600,000 have been excluded to avoid disclosure of financial position.

Cost of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. The following steps are used in the calculations.

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.

2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating costs.

3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating cost of producing milk.

4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.

5. The opportunity cost of equity capital, operator's labor and operator's management and the value of unpaid family labor are added to all other costs to obtain the total cost of producing milk. This cost includes all the operating, depreciation, and imputed cost of producing milk.

Table 30.

COST OF PRODUCING MILK, WHOLE FARM METHOD
321 New York Dairy Farms, 1995

Item	Average 321 Farms		Average Top 10% Farms	
Total Accrual Operating Expenses	$ 386,653		$ 863,601	
Expansion Livestock, Accrual	+ 9,025		+ 26,738	
1. Total Accrual Operating Expenses, Including Expansion Livestock		$ 395,678		$890,339
Total Accrual Receipts	$ 480,683		$1,144,005	
Milk Sales, Accrual	- 421,563		- 970,207	
2. Total Accrual Nonmilk Receipts		-$ 59,120		-$173,798
3. Operating Cost of Producing Milk		$ 336,558		$716,541
Machinery Depreciation		+$ 19,347		+ 37,771
Building Depreciation		+ 15,065		+ 30,306
4. Purchased Inputs Cost of Producing Milk		$ 370,970		$784,618
Family Labor Unpaid ($1,450/month)		+ 3,901		+ 1,595
Real Interest on Equity Capital		+ 30,553		+ 49,918
Value of Operating Labor & Management		+ 37,523		+ 47,125
5. Total Costs of Producing Milk		$ 442,947		$883,256
6. Costs Per Cwt.:				
Cwt. Milk Sold	32,362		74,720	
Operating Cost Per Cwt.	$ 10.40		$ 9.59	
Purchased Inputs Cost Per Cwt.	$ 11.46		$ 10.50	
Total Cost Per Cwt.	$ 13.69		$ 11.82	

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 31. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A $4,641 average increase in crop inventories per farm, ($.14 per cwt. of milk), is included in crop sales.

Table 31.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
321 New York Dairy Farms, 1995

Item	Average 321 Farms		Average Top 10% Farms	
Dairy grain and concentrate	$3.57		$3.37	
Dairy roughage	0.13		0.14	
Nondairy feed	0.01		0.01	
Total feed expense		$3.71		$3.52
Crop expense		0.70		0.62
- Crop sales and government receipts*		0.42		0.65
Net Feed and Crop Expense		$3.99		$3.49
Hired labor		1.78		2.12
Operator's and family labor		1.28		0.65
Total Labor Expense		$3.06		$2.77
Machine repairs, fuel and hire		1.12		0.91
Machinery depreciation		0.60		0.51
- Gas tax refunds and custom work		0.03		0.03
Net Machinery Expense		$1.69		$1.39
Replacement and expansion cattle purchases		0.42		0.45
- Sales and inventory growth		1.26		1.57
Net Cattle Purchases		$-0.84		$-1.12
Milk marketing costs		0.70		0.61
All other livestock expense excluding purchases		1.47		1.45
Net Livestock Expense		$2.17		$2.06
Real estate repairs, rent and taxes		0.67		0.60
Building depreciation		0.47		0.41
Total Real Estate Expense		$1.14		$1.01
Interest paid		0.94		1.05
Interest on equity		0.94		0.67
Total Interest Expense		$1.88		$1.72
Other operating and miscellaneous expenses		0.72		0.58
- Miscellaneous income		0.12		0.08
Net Miscellaneous Expenses		$ 0.60		$0.50
Total Cost of Producing Milk		$13.69		$11.82
Purchased Inputs Cost		$11.46		$10.50
Total Operating Cost		$10.40		$ 9.59

*Non-crop related government payments may bias the results.

The three measures of the accrual cost of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 32.

Table 32.

COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
321 New York Dairy Farms, 1995

Item	Average 321 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Cost of Producing Milk						
Operating Cost	$ 336,558	$2,107	$10.40	$716,541	$2,066	$ 9.59
Purchased Inputs Cost	370,970	2,323	11.46	784,618	2,262	10.50
Total Cost	442,947	2,774	13.69	883,256	2,547	11.82
Accrual Receipts from Milk	$421,563	$2,640	$13.03	$970,207	$2,798	$12.98
Profitability						
Net Farm Income without Appreciation	$ 50,593	$ 317	$ 1.56	$185,589	$ 535	$ 2.48
Net Farm Income with Appreciation	$ 62,032	$ 388	$ 1.92	$208,876	$ 602	$ 2.80

The operating cost of producing milk on all 321 dairy farms averaged $10.40 per hundredweight, leaving $2.63 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 321 dairy farms averaged $13.69 per hundredweight, $.66 more than the average price received for milk sold from these farms during 1995. This implies dairy farmers are willing to receive returns less than the stated charges on their labor and equity capital to remain in farming. The imputed costs or charge for the operator's labor, management and equity capital average $2.11 per hundredweight in 1995. The computed returns averaged $1.45 per hundredweight. The 32 most profitable farms held their operating costs to $9.59 per hundredweight and their total cost of producing milk averaged $11.82 per hundredweight. This left a profit of $1.16 per hundredweight of milk sold.

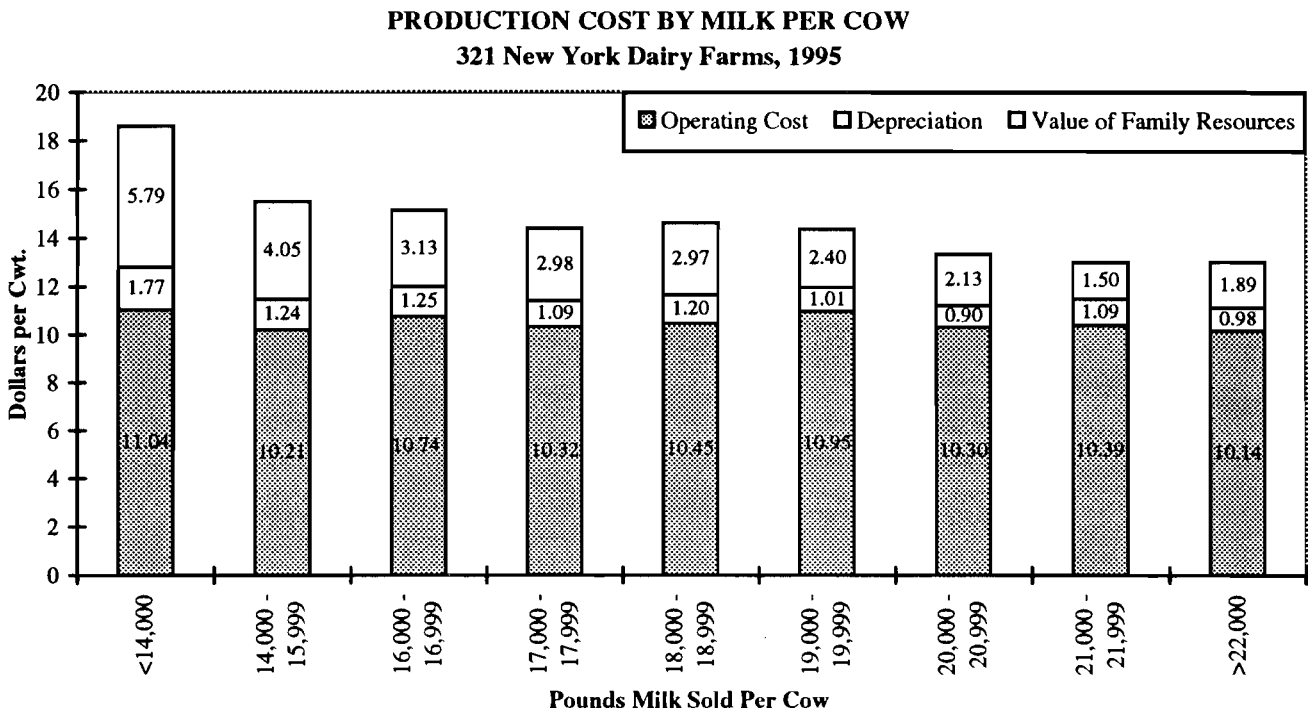
The strong relationship between milk output per cow and the cost of producing milk are shown in Table 33 and Chart 5 on page 29. Farms selling less than 18,000 pounds of milk per cow had average total costs of production of $15.90 per hundredweight while those selling 18,000 pounds and over average $13.68 for a difference of $2.22 per hundredweight.

Table 33.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
321 New York Dairy Farms, 1995

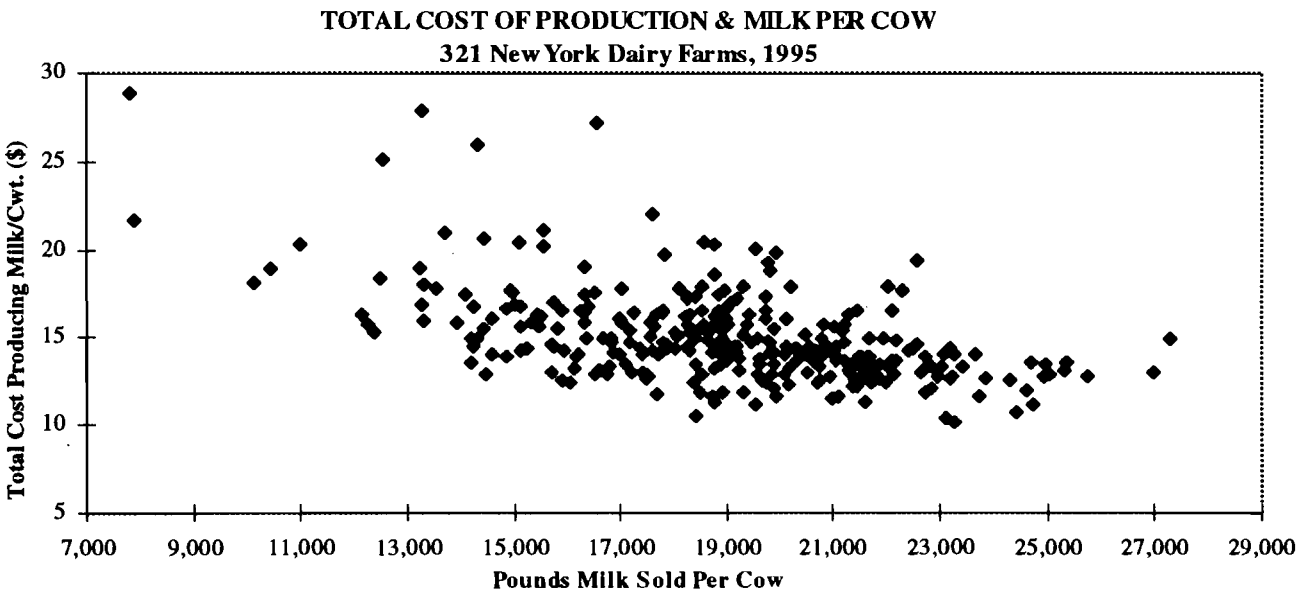
Pounds Milk Sold Per Cow	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Purchased Inputs	Total		
Under 14,000	$11.04	$12.81	$18.60	$13.01	$-0.33
14,000 - 15,999	10.21	11.45	15.50	13.11	1.08
16,000 - 16,999	10.74	11.99	15.12	13.06	0.88
17,000 - 17,999	10.32	11.41	14.39	13.09	1.46
18,000 - 18,999	10.45	11.65	14.62	13.06	1.19
19,000 - 19,999	10.95	11.96	14.36	13.03	0.96
20,000 - 20,999	10.30	11.20	13.33	12.86	1.59
21,000 - 21,999	10.39	11.48	12.98	12.97	1.45
22,000 & over	10.14	11.12	13.01	13.11	1.93

Chart 5.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 6. It shows that as milk sold per cow increases on the average, total cost of production decreases, at a fairly constant rate.

Chart 6.



Data in Table 34 and Chart 7 show the average operating cost of producing milk somewhat higher on dairy farms with 150 to 299 cows. More labor is included as an operating expense on large farms because hired labor is a greater proportion of the total labor resources used. The total cost of production generally declines as herd size increases because the cost of operator's resources are spread over more units of production.

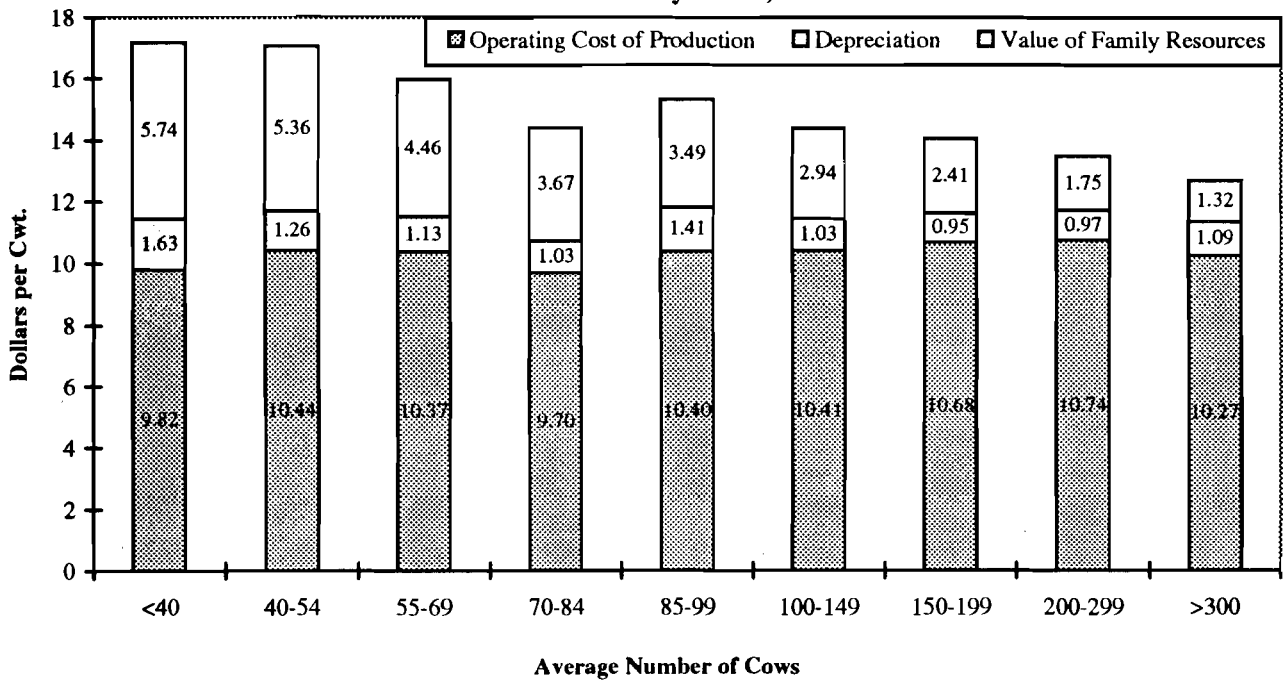
Table 34.

FARM COST OF PRODUCING MILK BY HERD SIZE
321 New York Dairy Farms, 1995

Number of Cows	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Purchased Inputs	Total		
Under 40	$9.82	$11.45	$17.19	$12.85	$0.69
40 to 54	10.44	11.70	17.06	12.95	0.50
55 to 69	10.37	11.50	15.96	12.91	0.89
70 to 84	9.70	10.73	14.40	12.91	1.94
85 to 99	10.40	11.81	15.30	13.11	0.84
100 to 149	10.41	11.44	14.38	13.05	1.47
150 to 199	10.68	11.63	14.04	13.08	1.38
200 to 299	10.74	11.71	13.46	13.12	1.35
300 & over	10.27	11.36	12.68	13.00	1.63

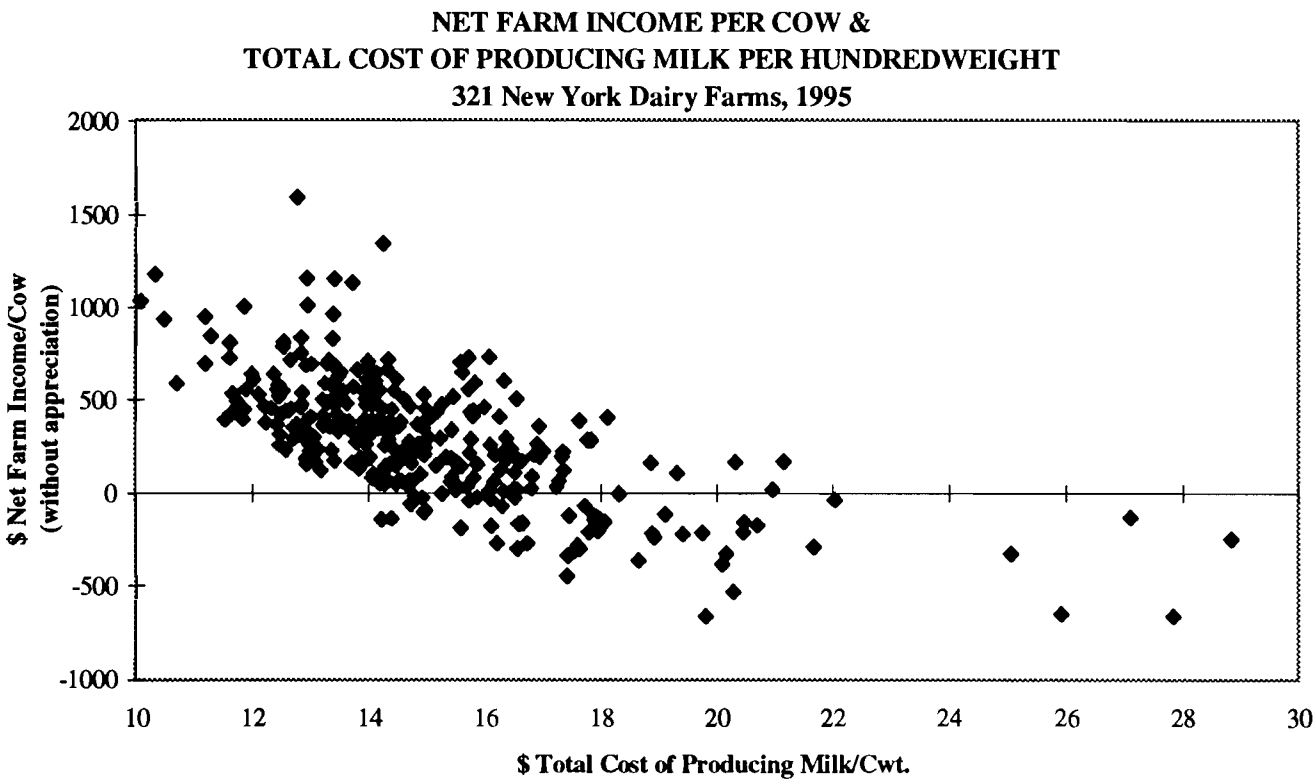
Chart 7.

PRODUCTION COST BY HERD SIZE
321 New York Dairy Farms, 1995



The importance of cost control and its impact on farm profitability are illustrated in Chart 8. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. All farms had a positive net farm income per cow until the total cost of producing milk reached $14 per hundredweight. The majority of the farms with costs greater than $17 per hundredweight experienced negative net farm incomes per cow.

Chart 8.



A 10-year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 35 on page 32. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 1986 through 1995. In 1995 the average operating cost of producing milk decreased 1 percent after increasing 3 percent from 1993 to 1994. The average return per hundredweight to operator labor, management, and capital fell to $1.44 in 1995, 16 percent below 1994.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 36 on page 33. Average cow numbers are up 68 percent, tillable acres have increased 39 percent, and milk sold per farm has jumped 110 percent since 1986. Capital investment per cow has increased 8 percent, far less than inflation, over the last 10 years. Labor and management income per operator decreased 30 percent in 1995 compared to 1994, and farm net worth continued to grow.

Table 35.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1986 to 1995

Item	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Operating Expenses										
Hired labor	$ 1.38	$ 1.49	$ 1.46	$ 1.62	$ 1.77	$ 1.74	$ 1.80	$ 1.86	$ 1.80	$1.78
Purchased feed	3.15	3.26	3.73	4.02	4.28	3.88	3.92	3.85	3.89	3.71
Machinery repair, vehicle expense & rent	.79	.92	.87	.96	1.11	.93	.97	.93	.92	.85
Fuel, oil & grease	.34	.35	.34	.33	.41	.37	.35	.34	.31	.27
Replacement livestock	.13	.13	.11	.17	.20	.15	.21	.17	.21	.15
Breeding fees	.19	.19	.18	.18	.19	.18	.18	.19	.17	.15
Veterinary & medicine	.28	.28	.28	.30	.32	.33	.35	.37	.40	.39
Milk marketing	.84	.74	.52	.49	.53	.58	.63	.64	.67	.70
Other dairy expenses	.52	.53	.56	.60	.68	.65	.70	.72	.88	.92
Lime & fertilizer	.49	.50	.51	.50	.50	.40	.37	.36	.33	.31
Seeds & plants	.21	.21	.21	.22	.22	.20	.21	.20	.19	.19
Spray & other crop expense	.20	.19	.19	.21	.22	.20	.21	.20	.20	.20
Land, building & fence repair	.16	.20	.22	.27	.32	.19	.24	.21	.21	.16
Taxes	.33	.35	.35	.36	.37	.38	.35	.34	.29	.27
Insurance	.22	.22	.23	.23	.24	.23	.22	.20	.18	.17
Utilities (farm share)	.39	.38	.38	.39	.39	.39	.38	.39	.38	.38
Interest paid	1.18	1.04	1.02	1.06	1.05	1.07	.88	.80	.81	.94
Misc. (including rent)	.41	.45	.41	.43	.47	.43	.44	.41	.40	.40
Total Operating Expenses	$11.22	$11.43	$11.57	$12.34	$13.27	$12.30	$12.41	$12.18	$12.24	$11.94
Less: Nonmilk cash receipts	1.52	1.84	1.86	1.75	1.75	1.73	1.67	1.65	1.30	1.15
Increase in grown feed & supplies	.01	.16	.16	.02	.26	.04	.23	.13	.25	.14
Increase in livestock	.12	.10	.08	.12	.15	.18	.08	.22	.21	.25
OPERATING COST OF MILK PRODUCTION	$ 9.57	$ 9.33	$ 9.47	$10.45	$11.11	$10.35	$10.43	$10.18	$10.47	$10.40
Overhead Expenses										
Depreciation: machinery & buildings	$ 1.54	$ 1.43	$ 1.31	$ 1.31	$1.35	$ 1.28	$ 1.19	$ 1.17	$ 1.13	$1.07
Unpaid labor	.13	.10	.11	.12	.19	.18	.16	.15	.12	.12
Operator(s) labor *	.86	.87	.95	.98	1.10	1.06	.99	1.00	.86	.92
Operator(s) management (5% of cash receipts)	.71	.74	.74	.81	.85	.73	.76	.74	.73	.70
Interest on farm equity capital (5%)	1.10	1.15	1.19	1.24	1.24	1.20	1.11	1.11	1.00	.94
Total Overhead Expenses	$ 4.34	$ 4.28	$ 4.30	$ 4.46	$ 4.73	$ 4.45	$ 4.21	$ 4.17	$ 3.84	$ 3.75
TOTAL COST OF MILK PRODUCTION	$13.91	$13.61	$13.77	$14.91	$15.84	$14.80	$14.64	$14.35	$14.31	$14.15
AVERAGE FARM PRICE OF MILK	$12.65	$12.89	$13.03	$14.53	$14.93	$12.95	$13.58	$13.14	$13.44	$13.03
Return per cwt. to operator labor, capital & mgmt.	$ 1.41	$ 2.04	$ 2.14	$ 2.65	$ 2.28	$ 1.14	$ 1.80	$ 1.64	$ 1.72	$ 1.44
Rate of return on farm equity capital	-0.7%	1.9%	1.8%	3.3%	1.3%	-2.7%	0.2%	-0.4%	0.6%	-1.0%

*1986 = $850/month, 1987 = $900/month, 1988 = $1,000/month, 1989 = $1,050/month, 1990 = $1,250/month,1991 = $1,300/month, 1992 = $1,350/month, 1993 = $1,400/month, and 1994 and 1995 = $1,450/month of operator labor.

Table 36.

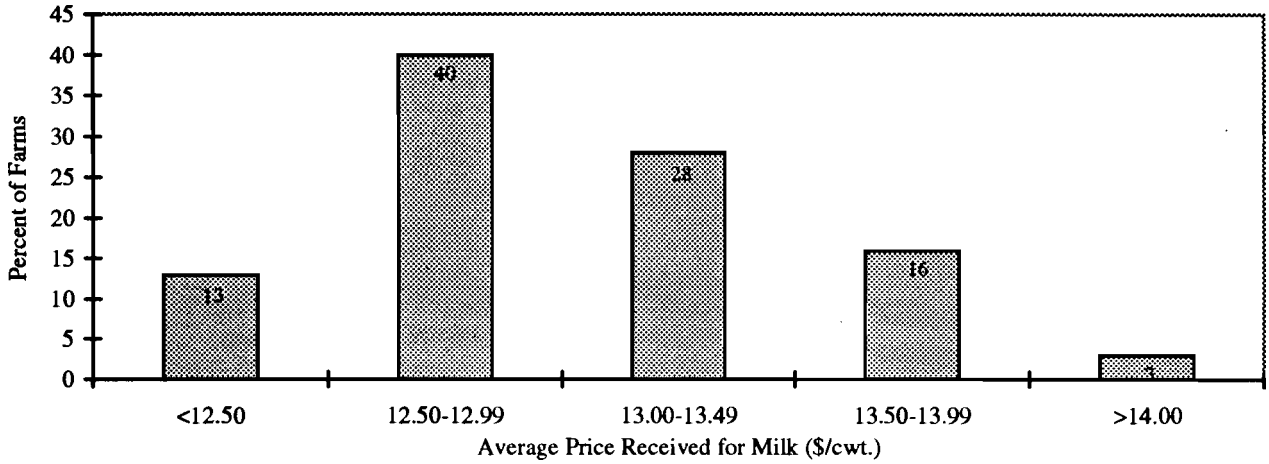
TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1986 to 1995

Item	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Number of farms	414	426	406	409	395	407	357	343	321	321
Cropping Program										
Total tillable acres	288	305	302	316	325	330	346	351	392	399
Tillable acres rented	100	105	104	117	121	124	135	135	159	166
Hay crop acres	147	153	156	164	166	169	171	182	195	197
Corn silage acres	67	67	74	81	82	88	98	96	110	117
Hay crop, tons DM/acre	2.7	2.7	2.6	2.6	2.7	2.4	2.8	2.7	3.0	2.8
Corn silage, tons/acre	14.3	16.2	14.1	13.4	14.4	13.7	14.5	14.9	16.4	15.6
Fert. & lime exp./tillable acre	$26	$27	$29	$29	$29	$25	$25	$25	$25	$25
Machinery cost/cow	$400	$413	$398	$425	$483	$438	$444	$430	$438	$402
Dairy Analysis										
Number of cows	95	101	102	104	107	111	123	130	151	160
Number of heifers	77	79	82	83	87	92	96	100	116	121
Milk sold, cwt.	15,374	16,498	17,200	17,975	19,005	20,060	23,130	24,448	30,335	32,362
Milk sold/cow, lbs.	16,237	16,351	16,882	17,259	17,720	18,027	18,789	18,858	20,091	20,269
Purchased dairy feed/cwt. milk	$3.10	$3.21	$3.71	$3.99	$4.27	$3.87	$3.91	$3.85	$3.89	$3.70
Purc. grain & conc. as % of milk receipts	24%	24%	28%	27%	28%	29%	28%	29%	28%	27%
Purc. feed & crop exp/cwt. milk	$4.00	$4.11	$4.62	$4.92	$5.21	$4.67	$4.70	$4.61	$4.61	$4.39
Capital Efficiency										
Farm capital/cow	$5,792	$5,894	$6,133	$6,407	$6,556	$6,688	$6,587	$6,462	$6,398	$6,264
Real estate/cow	$2,758	$2,805	$2,902	$2,977	$2,977	$3,063	$3,015	$2,932	$2,859	$2,763
Mach. invest./cow	$1,062	$1,057	$1,083	$1,154	$1,233	$1,267	$1,203	$1,165	$1,150	$1,098
Asset turnover ratio	.43	.45	.45	.48	.48	.43	.47	.46	.50	.49
Labor Efficiency										
Worker equivalent	3.17	3.19	3.17	3.30	3.37	3.38	3.60	3.68	4.02	4.40
Operator/manager equivalent	1.33	1.32	1.35	1.39	1.39	1.37	1.41	1.45	1.49	1.56
Milk sold/worker, lbs.	497,555	516,728	542,708	544,598	563,349	593,297	641,893	664,868	755,178	736,269
Cows/worker	31	32	32	32	32	33	34	35	38	36
Labor cost/cow	$385	$400	$426	$469	$541	$538	$552	$568	$558	$570
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$3,837	$11,042	$11,911	$18,004	$14,328	$-955	$11,254	$9,000	$14,789	$10,346
Farm net worth	$348,909	$398,209	$426,123	$468,848	$471,322	$480,131	$515,215	$542,126	$608,749	$624,261
Percent equity	62%	65%	66%	68%	66%	64%	64%	65%	63%	61%

The average or mean price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 321 farms was $13.03 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean is shown below.

Chart 9.

VARIATION IN AVERAGE MILK PRICE
321 New York Dairy Farms, 1995



Sixty-eight percent of the farms received from $12.50 to $13.49 per hundredweight of milk sold. Nineteen percent of the farms received $13.50 or more and 13 percent received less than $12.50 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and butterfat content are two variables that affect milk price. Butterfat content, which ranges from 3.6 percent to 3.9 percent as the milk price increases from less than $12.50 per cwt. to more than $14.00, explains a small portion of the difference in milk price on these farms.

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables the comparison of different size dairy farms for strengths and areas for improvement.

Table 37.

DAIRY RELATED ACCRUAL EXPENSES
321 New York Dairy Farms, 1995

	Average 321 Farms		Average Top 10% Farms	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$724	$3.57	$727	$3.37
Purchased dairy roughage	26	.13	30	.14
Total Purchased Dairy Feed	$750	$3.70	$757	$3.51
Purchased grain & concentrate as % of milk receipts	27%		26%	
Purchased feed & crop expense	$890	$4.39	$891	$4.14
Purchased feed & crop expense as % of milk receipts	34%		32%	
Breeding	$ 31	$.15	$ 28	$.13
Veterinary & medicine	79	.39	86	.40
Milk marketing	142	.70	132	.61
Bedding	31	.15	39	.18
Milking Supplies	65	.32	62	.29
Cattle lease	4	.02	11	.05
Custom boarding	17	.08	11	.05
Other livestock expense	71	.35	76	.35

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality and quantity of the roughage harvested, and the number of youngstock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.76 replacement being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency although variations in homegrown grains fed and milk prices can have an adverse effect. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of home grown grains.

Cost control has an important affect on farm profitability. The relationship purchased feed and crop expense per hundredweight of milk has with farm profitability is shown in the following table.

Table 38.

PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
321 New York Dairy Farms, 1995

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator
$6.00 or more	17	94	4.4	18,397	$10,212	$-5,350
5.50 to 5.99	20	100	7.4	18,299	$5,478	$-11,911
5.00 to 5.49	49	148	7.1	18,974	$22,027	$-5,716
4.50 to 4.99	74	151	7.8	20,328	$44,635	$8,881
4.00 to 4.49	75	174	8.1	20,902	$61,994	$16,863
3.50 to 3.99	51	239	7.1	20,803	$99,668	$34,004
Less than 3.50	35	114	6.7	20,499	$52,608	$11,974

On the average, farms with purchased feed and crop expenses exceeding $4.50 per hundredweight of milk sold reported well below average farm profits. Farms reporting less than $4.50 per hundredweight showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average. Note that farms reporting less than $3.50 of feed and crop expense per cwt. of milk sold had reduced forage supplies, less milk sold per cow and lower levels of profitability.

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively capital is being used in the farm business. Measures of labor efficiency are key indicators of the work accomplished by each worker.

Table 39.

CAPITAL EFFICIENCY
321 New York Dairy Farms, 1995

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$227,578	$6,264	$2,507	$4,293
Real estate		$2,763		$1,894
Machinery & equipment	$39,912	$1,098	$440	
Asset turnover ratio	.49			
Average Top 10% Farms:				
Farm capital	$252,348	$5,601	$2,811	$5,098
Real estate		$2,294		$2,088
Machinery & equipment	$40,243	$893	$448	
Asset turnover ratio	.60			

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.5 or higher.

Table 40.

ASSET TURNOVER AND PROFITABILITY
321 New York Dairy Farms, 1995

Ratio	No. of Farms	No. of Cows	Farm Capital (average for year) Per Cow	Farm Capital (average for year) Per Worker	Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
≥ .70	11	356	$3,929	$171,178	$27,283	$85,933
.60 to .69	31	293	5,329	224,515	36,225	106,925
.50 to .59	72	245	5,857	229,627	25,645	84,818
.40 to .49	70	141	6,587	223,418	7,633	47,119
.30 to .39	90	86	7,826	235,009	-1,020	26,292
Less than .30	47	64	9,417	265,417	-19,828	4,436

The 32 farms with the highest rates of return on all capital (without appreciation) were considerably above the average of all 321 farms in 2 measures of labor efficiency. The top 10 percent sold 32 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY
321 New York Dairy Farms, 1995

Labor Efficiency	Average Farms Total	Average Farms Per Worker*	Average Top 10% Farms Total	Average Top 10% Farms Per Worker*
Cows, average number	160	36	347	45
Milk sold, pounds	3,236,210	736,269	7,472,029	970,787
Tillable acres	399	91	691	90

*For 1995, the method used to calculate worker equivalent was changed to incorporate the number of hours actually worked by the owner/operators instead of using a standard 12 months for each full-time owner/operator of the business.

The labor force averaged 4.40 full-time worker equivalents per farm (based on 230 hours per month). Thirty-nine percent of the labor was supplied by the farm operator/managers. There were two operators on 128 farms, three on 36 farms, 13 farms reported four operators, and two farms reported five operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high rates of return can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs average $69 per cow less on the 32 farms in the top decile.

Table 42.

LABOR FORCE INVENTORY AND COST ANALYSIS
321 New York Dairy Farms, 1995

Labor Force	Months*	Age	Years of Education	Value of Labor & Management
Operator number 1	13.53	47	14	$24,937
Operator number 2	4.93	41	14	8,907
Operator number 3	1.41	38	14	2,745
Operator number 4	.48	37	14	802
Operator number 5	.09	23	13	132
Family paid	4.59			Total $37,523
Family unpaid	2.69			
Hired	25.03			
Total	52.75	÷ 12 =	4.40 Worker Equivalent	
			1.56 Operator/Manager Equivalent	
Average Top 10% Farms:				
Total	92.36	÷ 12 =	7.70 Worker Equivalent	
Operators'	20.16	÷ 12 =	1.68 Operator/Manager Equivalent	

	Average 321 Farms			Avg. Top 10% Farms	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor ($1,450/mo.)	$29,638	$186	$ .92	$ 94	$ .44
Family unpaid ($1,450/mo.)	3,901	24	.12	5	.02
Hired	57,561	360	1.78	457	2.12
Total Labor	$91,100	$570	$2.82	$556	$2.58
Machinery Cost	64,156	402	1.98	347	1.61
Total Labor & Machinery	$155,256	$972	$4.80	$903	$4.19

*See footnote for Table 41.

The relationship of labor efficiency to net farm income is positive on the farms. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

Table 43.

MILK SOLD PER WORKER AND NET FARM INCOME
321 New York Dairy Farm, 1995

Pounds of Milk Sold Per Worker	No. Of Farms	No. Of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	49	55	16,254	$10,288	$-9,232
400,000 to 499,999	45	77	17,495	13,788	-7,867
500,000 to 599,999	65	65	18,815	32,529	3,713
600,000 to 699,999	49	130	19,792	46,394	7,391
700,000 to 799,999	30	169	20,860	45,297	8,096
800,000 to 899,999	33	192	20,822	57,378	12,507
900,000 & over	50	417	21,534	149,500	48,149

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 321 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

Table 44.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
321 New York Dairy Farms, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
12.9	584	12,747,839	23,974	5.2	22	56	1,089,131
6.9	252	5,319,020	21,921	3.9	19	44	901,135
5.2	181	3,558,382	21,104	3.4	18	40	800,305
4.2	136	2,659,236	20,216	2.9	16	36	706,048
3.6	114	2,160,673	19,389	2.7	15	33	635,059
3.1	95	1,740,922	18,797	2.4	14	30	579,646
2.6	73	1,368,629	18,104	2.2	13	29	533,945
2.2	62	1,106,737	17,095	1.9	12	26	464,985
1.8	50	833,091	15,706	1.6	10	23	394,437
1.4	37	570,337	13,082	1.1	7	17	279,221

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$362	16%	$215	$669	$497	$2.93
498	21	294	806	639	3.65
566	24	337	866	713	3.97
616	26	366	923	784	4.19
661	27	397	971	843	4.41
707	29	429	1,027	883	4.60
755	30	466	1,105	919	4.79
805	32	510	1,182	974	5.03
868	34	564	1,254	1,052	5.34
985	39	726	1,492	1,204	6.15

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

Table 44. (continued)

FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
321 New York Dairy Farms, 1995

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
$3,161	$13.95	$1,156	$7.16	$2,062	$11.75
2,870	13.55	1,515	8.79	2,316	12.79
2,727	13.33	1,667	9.39	2,491	13.28
2,618	13.15	1,803	9.80	2,624	13.82
2,526	13.02	1,933	10.18	2,739	14.19
2,447	12.90	2,051	10.54	2,840	14.63
2,349	12.81	2,149	10.99	2,928	15.28
2,231	12.69	2,269	11.36	3,040	16.05
2,032	12.55	2,390	12.08	3,222	17.07
1,684	12.13	2,680	13.43	3,646	20.60

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	As % of Total Accrual Receipts	Total	Per Cow	Per Farm	Per Operator
$241,346	$881	28.8%	$304,248	$992	$154,049	$104,666
95,284	601	20.9	106,273	663	53,202	31,707
63,686	488	16.9	71,128	551	30,669	20,493
45,922	403	14.4	51,234	459	18,768	12,917
34,731	346	11.9	38,124	385	9,393	6,876
24,327	263	10.0	30,424	318	1,424	875
15,103	183	6.8	20,465	226	-7,053	-5,443
8,344	94	3.6	12,249	137	-16,985	-12,785
-3,725	-45	-1.4	-225	-9	-28,613	-26,054
-25,068	-302	-14.0	-21,201	-284	-57,804	-52,230

Farm Business Charts for farms with freestall barns and 150 cows or less, 150 to 300 cows, and more than 300 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 55-59.

Financial Analysis and Management

Analysis and astute management of farm financial affairs must receive high priority if the farm business is to be successful and if the farm family is to achieve a reasonable living standard.

The farm finance checklist and the financial analysis chart are provided to serve as guidelines. Dairy farmers can determine how their financial management measures up by comparing with average data from other farms.

Table 45.

A FARM FINANCE CHECKLIST
321 New York Dairy Farms, 1995

	Average 321 Farms		Average Top 10% Farms*	
How farm assets are being used (average for the year):				
Total assets (capital) per cow	$6,264		$5,601	
Farm assets in livestock	24%		27%	
Farm assets in farm real estate	44%		41%	
Farm assets in machinery	18%		16%	
Measures of debt capacity & debt structure:				
Equity in the business	61%		53%	
Farm debt per cow	$2,381		$2,578	
Long term debt/asset ratio**	0.37		0.51	
Intermediate & current term debt/asset ratio**	0.41		0.45	
Intermediate & current term debt as % of total	59%		57%	
Debt repayment ability:***				
Cash flow coverage ratio	0.98		1.12	
Debt payments made per cow	$527		$580	
Debt payments made as % of milk receipts	20%		21%	
Indicators of annual financial progress:	Amount	Percent	Amount	Percent
Annual change in farm assets	+$47,944	+4.9%	+$175,773	+9.5%
Annual change in farm debts	+$21,551	+5.7%	+$35,420	+3.8%
Annual change in farm net worth	+$26,393	+4.4%	+$140,353	+15.1%

*Thirty-two farms with highest rates of return on all capital (without appreciation).
**Long or intermediate and current term debt divided by long or intermediate and current term assets.
***Average of 246 farms that participated in DFBS both in 1994 and 1995. Thirty of the 32 top 10 percent farms participated both years.

The most profitable farms carried $197 more debt per cow, the average equity in their businesses was 8 percent lower than that of the average of all 321 farms, but they had a greater ability to make 1995 debt payments.

Average farm debts grew 0.8 percentage points faster than assets during 1995 on the 321 dairy farms. Average farm net worth increased 4.4 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 38-39 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 12, 15, 19, and 36 in this publication.

Table 46.

FINANCIAL ANALYSIS CHART
321 New York Dairy Farms, 1995

Liquidity (repayment)				
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow
$49	$800	2.94	5%	$181
210	589	1.50	10	811
288	526	1.22	12	1,430
344	472	1.06	14	1,761
409	421	0.92	17	2,107
470	367	0.83	18	2,454
511	305	0.72	21	2,726
568	234	0.53	23	3,051
640	144	0.30	27	3,476
842	-124	-0.36	38	4,330

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio*	Percent Equity	Current & Intermediate	Long Term	Equity	Investment**
0.03	97%	0.02	0.00	22%	13%
0.14	88	0.10	0.00	8	8
0.26	79	0.17	0.07	5	6
0.37	73	0.25	0.19	3	5
0.49	67	0.33	0.28	1	3
0.65	61	0.39	0.37	-1	2
0.82	54	0.45	0.43	-3	0
0.99	50	0.52	0.55	-6	-2
1.31	43	0.61	0.66	-11	-4
3.52	30	0.89	0.87	-35	-9

Efficiency (Capital)				
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
.71	$1,330	$503	$4,207	$194,829
.58	1,932	724	5,131	62,523
.54	2,197	865	5,548	36,676
.50	2,466	981	5,904	22,792
.45	2,749	1,098	6,350	12,932
.41	3,040	1,243	6,746	6,448
.38	3,455	1,393	7,239	356
.34	3,899	1,595	7,880	-7,042
.30	4,480	1,913	8,673	-18,529
.21	6,579	2,653	11,340	-52,292

*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
**Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Herd Size Comparisons

The 321 New York dairy farms have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 47 through 51. Note that after the less than 40 cow category, the herd size categories increase by 15 cows up to 100 cows, then by 50 cows up to 200 cows and by 100 cows up to 300 cows. The 300 or more cow category contains the greatest herd size range with one herd exceeding 2000 cows.

As herd size increases, the average profitability generally increases (Table 47). Net farm income without appreciation averaged $7,400 per farm for the less than 40 cow farms and $202,491 per farm for those with 300 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. If size were the only factor, net farm income per cow would be constant throughout all size categories. Farms with 70 to 84 cows averaged $417 net farm income per cow while the 150 to 199 cow dairy farms average only $283 net farm income per cow. The 300 and over herd size category had the second highest net farm income per cow at $356. Other factors that affect profitability and their relationship to the size classifications are shown in Table 48.

Table 47.

COWS PER FARM AND FARM FAMILY INCOME MEASURES
321 New York Dairy Farms, 1995

Number of Cows	Number of Farms	Ave. No. of Cows	Net Farm Income Without Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital Without Apprec.
Under 40	17	33	$7,400	$224	$-4,233	-3.4%
40 to 54	42	47	9,893	210	-7,690	-3.3%
55 to 69	44	62	15,398	248	-7,058	-1.2%
70 to 84	28	76	31,702	417	6,970	1.3%
85 to 99	17	91	21,668	238	-6,209	0.5%
100 to 149	72	120	36,939	308	4,380	2.2%
150 to 199	30	172	48,748	283	4,937	3.2%
200 to 299	36	241	70,997	295	17,720	5.1%
300 & over	35	568	202,491	356	51,752	7.6%

As herd size increased to 70 to 84 cows, net farm income per cow generally increased. Net farm income per cow increased as economies were attained while utilizing family labor. Farms with over 84 cows saw purchased inputs increase per cow before economies of size again appeared.

Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
321 New York Dairy Farms, 1995

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 40	33	15,961	3,285	4.02	6.10	$7,977	$9.82	$17.19
40 to 54	47	17,009	4,044	3.26	6.54	7,801	10.44	17.06
55 to 69	62	17,661	4,577	3.20	7.34	7,856	10.37	15.96
70 to 84	76	19,136	5,524	3.17	7.64	6,946	9.70	14.40
85 to 99	91	18,267	5,565	3.29	8.34	7,310	10.40	15.30
100 to 149	120	19,231	6,197	3.04	7.77	6,712	10.41	14.38
150 to 199	172	19,517	6,632	2.80	8.04	6,815	10.68	14.04
200 to 299	241	20,837	8,471	2.25	6.92	5,511	10.74	13.46
300 & over	568	21,742	9,842	1.94	7.31	5,686	10.27	12.68

The dairy farms with 70 to 84 cows averaged 19,136 pounds of milk sold per cow, 2,260 pounds more per cow than the average of all the smaller farms in the study. The operating costs of producing milk were $9.70 per hundredweight on this group of farms, the lowest of all size categories.

The farms with 300 and more cows averaged more milk sold per cow than any other size category. With 21,742 pounds of milk sold per cow, farms in the largest herd size group averaged 18 percent more milk output per cow than the average of all herds in the summary with less than 300 cows.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) is a herd management practice commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only three percent of the 148 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 149 cows reported 15 percent of the herds milking more often than 2X, the 150-199 cow herds reported 17 percent, 200-299 cow herds reported 50 percent and the 300 cow and larger herds reported 69 percent exceeding the 2X milking frequency.

A new technology, bovine somatotropin (bST), was used on a much larger proportion of the large herd farms. bST was used sometime during 1995 on 28 percent of the herds with less than 100 cows, 71 percent of the farms with 100 to 299 cows and on 91 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 770,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 500,000 pounds per worker.

In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 1.94 tillable acres per cow, and the second most efficient use of farm capital with an average investment of $5,686 per cow.

The last column in Table 48 may be the most important in explaining why profits were significantly higher on the 300 plus cow farms. The 35 farms with 300 and more cows held their average total costs of producing milk to $12.68 per hundredweight, $2.28 below the $14.96 average for the remaining 286 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 300 plus cow dairy farms profit margins (milk price less total cost of producing milk) that averaged $2.27 per hundredweight above the average of the other 286 DFBS farms.

Table 49.

FARM BUSINESS SUMMARY BY HERD SIZE
321 New York Dairy Farms, 1995

Item — Farm Size:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms	17	42	44	28	17
ACCRUAL EXPENSES					
Hired labor	$1,783	$3,583	$11,845	$13,621	$13,825
Dairy grain & concentrate	20,246	28,716	40,247	51,113	59,368
Dairy roughage	2,090	1,562	1,378	2,732	1,222
Nondairy feed	0	192	0	302	0
Machine hire, rent & lease	1,807	2,242	1,693	1,824	1,863
Machine repairs & farm vehicle expense	3,542	5,997	8,037	12,258	13,666
Fuel, oil & grease	1,626	2,473	3,554	5,150	5,357
Replacement livestock	1,495	2,375	1,618	933	2,971
Breeding	1,057	1,885	2,758	2,737	3,368
Veterinary & medicine	1,658	2,782	3,698	4,823	6,106
Milk marketing	4,111	7,278	8,647	10,257	13,848
Bedding	232	349	466	777	1,160
Milking supplies	2,097	3,229	4,185	4,765	7,597
Cattle lease & rent	0	0	28	0	0
Custom boarding	62	175	477	622	558
Other livestock expense	1,862	2,223	3,903	4,725	3,249
Fertilizer & lime	1,118	2,837	3,923	5,213	7,849
Seeds & plants	791	1,353	2,174	3,176	4,285
Spray & other crop expense	367	1,348	1,820	3,089	3,815
Land, building & fence repair	1,176	1,590	1,702	3,670	3,636
Taxes & rent	3,596	4,470	6,431	9,698	9,203
Utilities	2,677	4,632	5,908	7,031	7,970
Interest paid	5,581	7,683	9,282	10,069	17,183
Misc. (including insurance)	2,145	3,344	4,969	5,561	7,181
Total Operating Expenses	$61,119	$92,318	$128,743	$164,146	$195,280
Expansion livestock	570	578	1,300	2,257	2,506
Machinery depreciation	6,414	6,553	7,734	9,020	17,213
Building depreciation	2,223	3,464	4,679	5,919	6,261
Total Accrual Expenses	$70,326	$102,913	$142,456	$181,342	$221,260
ACCRUAL RECEIPTS					
Milk sales	$67,928	$102,673	$141,173	$187,337	$218,504
Dairy cattle	7,254	6,861	8,383	14,553	17,016
Dairy calves	701	1,395	1,728	1,776	2,046
Other livestock	-117	259	164	71	-40
Crops	-781	-1,706	1,770	4,315	-797
Misc. receipts	2,741	3,324	4,636	4,992	6,199
Total Accrual Receipts	$77,726	$112,806	$157,854	$213,044	$242,928
PROFITABILITY ANALYSIS					
Net farm income (without appreciation)	$7,400	$9,893	$15,398	$31,702	$21,668
Net farm income (with appreciation)	$8,276	$12,622	$17,971	$35,178	$26,533
Labor & management income	$-4,868	$-8,920	$-8,540	$9,618	$-8,755
Number of operators	1.15	1.16	1.21	1.38	1.41
Labor & management income/operator	$-4,233	$-7,690	$-7,058	$6,970	$-6,209
Rates of return on:					
Equity capital without appreciation	-8.5%	-7.7%	-4.1%	-0.8%	-3.0%
Equity capital with appreciation	-8.0%	-6.6%	-3.4%	0.1%	-1.9%
All capital without appreciation	-3.4%	-3.3%	-1.2%	1.3%	0.5%
All capital with appreciation	-3.0%	-2.6%	-0.7%	2.0%	1.3%

Table 49. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
321 New York Dairy Farms, 1995

Item	Farm Size:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms		72	30	36	33
ACCRUAL EXPENSES					
Hired labor		$33,230	$55,313	$85,435	$286,600
Dairy grain & concentrate		79,884	125,136	189,654	428,468
Dairy roughage		2,887	3,312	8,883	12,241
Nondairy feed		262	54	14	211
Machine hire, rent & lease		4,677	8,845	8,855	21,933
Machine repairs & farm vehicle expense		17,080	25,239	35,042	68,011
Fuel, oil & grease		7,470	10,603	13,925	27,325
Replacement livestock		4,437	6,032	6,830	13,836
Breeding		4,091	5,393	7,197	15,364
Veterinary & medicine		7,920	13,906	21,467	49,700
Milk marketing		17,164	24,938	37,841	76,203
Bedding		2,132	3,537	7,274	27,482
Milking supplies		7,867	10,671	16,737	35,050
Cattle lease & rent		0	646	941	4,839
Custom boarding		2,025	2,646	7,233	9,443
Other livestock expense		7,108	10,117	17,000	49,513
Fertilizer & lime		8,604	11,711	14,848	32,361
Seeds & plants		5,333	6,932	8,312	19,991
Spray & other crop expense		5,402	6,532	8,860	25,667
Land, building & fence repair		3,783	5,149	8,583	17,281
Taxes & rent		13,004	23,107	27,559	48,608
Utilities		9,908	13,194	16,266	40,906
Interest paid		21,576	32,563	48,033	117,771
Misc. (including insurance)		8,746	12,538	14,522	36,841
Total Operating Expenses		$274,590	$418,114	$611,311	$1,465,645
Expansion livestock		2,358	18,437	15,394	40,663
Machinery depreciation		15,482	20,679	29,606	61,136
Building depreciation		8,182	11,276	19,039	73,197
Total Accrual Expenses		$300,612	$468,506	$675,350	$1,640,641
ACCRUAL RECEIPTS					
Milk sales		$299,736	$439,446	$659,815	$1,604,727
Dairy cattle		19,938	47,377	57,168	144,972
Dairy calves		3,051	4,749	6,989	15,396
Other livestock		729	1,178	1,503	3,389
Crops		5,906	10,566	9,851	39,314
Misc. receipts		8,191	13,938	11,021	35,334
Total Accrual Receipts		$337,551	$517,254	$746,347	$1,843,132
PROFITABILITY ANALYSIS					
Net farm income (without appreciation)		$36,939	$48,748	$70,997	$202,491
Net farm income (with appreciation)		$43,592	$56,367	$79,130	$266,734
Labor & managment income		$7,008	$8,887	$31,542	$113,855
Number of operators		1.60	1.80	1.78	2.20
Labor & management income/operator		$4,380	$4,937	$17,720	$51,752
Rates of return on:					
Equity capital without appreciation		-0.8%	0.7%	2.7%	7.3%
Equity capital with appreciation		0.5%	1.7%	3.8%	10.9%
All capital without appreciation		2.2%	3.2%	5.1%	7.6%
All capital with appreciation		3.0%	3.9%	5.7%	9.6%

Table 50.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
321 New York Dairy Farms, 1995

Farms with:	Less than 40 Cows		40 to 54 Cows		55 to 69 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash, checking & savings	$2,885	$5,368	$2,685	$3,031	$4,874	$5,886
Accounts receivable	5,434	5,496	7,728	8,732	11,332	12,475
Prepaid expenses	0	0	40	41	40	113
Feed & supplies	10,859	9,712	22,278	19,830	28,471	30,037
Livestock*	47,292	45,886	70,751	70,700	91,789	90,510
Machinery & equipment*	44,343	44,696	67,198	70,134	93,032	94,361
Farm Credit stock	704	685	990	1,147	1,286	1,480
Other stock & certificates	510	534	1,870	1,802	5,482	4,366
Land & buildings*	152,176	151,471	188,129	189,979	247,750	249,311
Total Farm Assets	$264,203	$263,848	$361,669	$365,396	$484,056	$488,539
Personal cash, checking & savings	$1,020	$918	$2,471	$2,356	$6,961	$5,624
Cash value of life insurance	5,385	5,705	4,880	5,561	6,329	6,387
Nonfarm real estate	17,909	18,182	30,362	30,273	19,797	18,000
Auto (personal share)	2,711	3,150	3,493	3,413	4,480	4,276
Stocks & bonds	93	257	2,816	3,847	6,530	8,043
Household furnishings	13,227	13,773	11,033	11,367	10,773	10,924
All other	682	1,009	2,428	2,641	5,695	6,061
Nonfarm Assets**	$41,028	$42,994	$57,483	$59,458	$60,564	$59,315
Farm & Nonfarm Assets	$305,231	$306,842	$419,152	$424,854	$544,620	$547,854
LIABILITIES						
Accounts payable	$6,469	$5,687	$4,437	$5,088	$6,929	$5,073
Operating debt	122	1,494	2,613	2,643	4,313	6,892
Short term	0	0	68	192	1,305	585
Advanced government receipt	0	0	7	82	0	0
Current Portion:						
Intermediate	4,773	4,777	8,094	7,556	9,021	9,986
Long Term	2,785	3,164	3,737	3,966	2,271	2,191
Intermediate***	29,538	32,402	31,196	26,789	43,971	42,929
Long term*	49,702	47,209	55,546	59,780	53,014	51,070
Total Farm Liabilities	$93,389	$94,733	$105,698	$106,096	$120,824	$118,726
Nonfarm Liabilities**	9,351	8,982	1,960	2,367	1,872	1,672
Farm & Nonfarm Liabilities	$102,740	$103,715	$107,658	$108,463	$122,696	$120,398
Farm Net Worth (Equity Capital)	$170,814	$169,115	$255,971	$259,300	$363,232	$369,813
Farm & Nonfarm Net Worth	$202,491	$203,127	$311,494	$316,391	$421,924	$427,456

FINANCIAL MEASURES	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows
Percent Equity	64%	71%	76%
Debt/asset ratio-long term	0.31	0.31	0.20
Debt/asset ratio-intermediate & current	0.42	0.26	0.28
Change in net worth with appreciation	$-1,699	$3,329	$6,581
Total farm debt per cow	$2,707	$2,165	$1,885
Debt payments made per cow	$619	$585	$538
Debt payments as % of milk sales	28%	26%	22%
Amount available for debt service	$9,683	$16,416	$16,913
Cash flow coverage ratio for 1995	0.53	0.83	0.71

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1995.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
321 New York Dairy Farms, 1995

Item	Farms with: 70 to 84 Cows Jan. 1	70 to 84 Cows Dec. 31	85 to 99 Cows Jan. 1	85 to 99 Cows Dec. 31
ASSETS				
Farm cash, checking & savings	$3,855	$4,603	$3,083	$3,333
Accounts receivable	14,674	15,243	17,411	19,621
Prepaid expenses	219	0	0	0
Feed & supplies	37,244	40,322	60,005	58,948
Livestock*	116,607	119,110	144,531	143,957
Machinery & equipment*	102,127	105,689	137,828	142,075
Farm Credit stock	1,231	1,238	2,200	2,536
Other stock & certificates	3,295	3,901	3,702	3,822
Land & buildings*	235,006	248,611	294,131	296,122
Total Farm Assets	$514,258	$538,717	$662,891	$670,414
Personal cash, checking & savings	$8,374	$8,413	$6,782	$7,062
Cash value of life insurance	10,765	12,156	8,951	10,402
Nonfarm real estate	8,150	15,094	10,000	10,000
Auto (personal share)	3,683	4,206	3,056	2,911
Stocks & bonds	7,213	7,086	6,678	12,856
Household furnishings	9,794	9,850	11,167	12,000
All other	3,222	6,182	3,172	5,016
Nonfarm Assets**	$51,202	$62,987	$49,805	$60,247
Farm & Nonfarm Assets	$565,460	$601,704	$712,696	$730,661
LIABILITIES				
Accounts payable	$8,798	$10,058	$11,071	$13,854
Operating debt	4,129	5,776	5,149	8,303
Short term	5,280	3,661	1,469	1,990
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	13,280	14,623	16,714	17,752
Long Term	3,798	3,714	5,537	5,524
Intermediate***	57,298	62,496	93,782	85,797
Long term*	54,296	62,219	77,972	75,396
Total Farm Liabilities	$146,879	$162,547	$211,694	$208,616
Nonfarm Liabilities**	9,603	12,243	4,526	4,455
Farm & Nonfarm Liabilities	$156,482	$174,790	$216,220	$213,071
Farm Net Worth (Equity Capital)	$367,379	$376,170	$451,197	$461,798
Farm & Nonfarm Net Worth	$408,978	$426,914	$496,476	$517,590

FINANCIAL MEASURES	70 to 84 Cows	85 to 99 Cows
Percent equity	70%	69%
Debt/asset ratio-long term	0.25	0.25
Debt/asset ratio-intermeidate & current	0.35	0.36
Change in net worth with appreciation	$8,791	$10,601
Total farm debt per cow	$2,084	$2,173
Debt payments made per cow	$376	$605
Debt payments as % of milk sales	15%	25%
Amount available for debt service	$25,417	$44,818
Cash flow coverage ratio for 1995	0.82	1.09

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1995.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
321 New York Dairy Farms, 1995

Farms with:	100 to 149 Cows		150 to 199 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$6,432	$5,998	$12,096	$10,374
Accounts receivable	23,524	25,680	35,147	43,080
Prepaid expenses	1,130	1,181	618	559
Feed & supplies	69,999	72,984	103,957	111,392
Livestock*	178,574	181,666	258,900	278,761
Machinery & equipment*	159,458	163,307	203,306	213,692
Farm Credit stock	4,099	4,223	5,187	5,113
Other stock & certificates	7,573	8,012	15,367	16,687
Land & buildings*	340,138	350,248	492,796	526,168
Total Farm Assets	$790,927	$813,299	$1,131,921	$1,213,698
Personal cash, checking & savings	$9,115	$8,871	$22,438	$8,848
Cash value of life insurance	8,582	9,779	17,482	19,572
Nonfarm real estate	54,449	59,987	20,625	20,625
Auto (personal share)	5,249	5,895	4,326	4,169
Stocks & bonds	8,150	11,119	4,700	6,213
Household furnishings	7,342	7,765	9,375	9,938
All other	12,071	11,061	10,224	9,813
Nonfarm Assets**	$104,959	$114,478	$89,170	$79,177
Farm & Nonfarm Assets	$895,886	$927,777	$1,221,091	$1,292,875
LIABILITIES				
Accounts payable	$7,564	$10,517	$19,371	$23,524
Operating debt	11,267	12,429	11,788	15,946
Short term	1,557	2,250	4,019	11,609
Advanced government receipt	0	0	0	0
Current Portion:				
Intermediate	20,171	22,652	24,757	28,944
Long Term	6,951	7,408	9,226	10,682
Intermediate***	98,433	97,173	149,943	173,641
Long term*	117,511	121,622	172,297	189,999
Total Farm Liabilities	$263,454	$274,051	$391,401	$454,345
Nonfarm Liabilities**	8,051	7,594	5,269	5,260
Farm & Nonfarm Liabilities	$271,505	$281,645	$396,670	$459,605
Farm Net Worth (Equity Capital)	$527,473	$539,248	$740,520	$759,353
Farm & Nonfarm Net Worth	$624,381	$646,132	$824,421	$833,270

FINANCIAL MEASURES	100 to 149 Cows	150 to 199 Cows
Percent equity	66%	63%
Debt/asset ratio-long term	0.35	0.36
Debt/asset ratio-intermeidate & current	0.33	0.38
Change in net worth with appreciation	$11,775	$18,833
Total farm debt per cow	$2,210	$2,430
Debt payments made per cow	$496	$619
Debt payments as % of milk sales	20%	24%
Amount available for debt service	$42,712	$64,348
Cash flow coverage ratio for 1995	0.81	0.80

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1995.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE

321 New York Dairy Farms, 1995

Farms with:	200 to 299 Cows		More than 300 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$5,992	$8,620	$19,324	$21,091
Accounts receivable	49,095	54,939	94,599	114,324
Prepaid expenses	71	0	4,771	5,058
Feed & supplies	117,295	121,539	296,702	329,965
Livestock*	351,571	374,767	786,627	863,972
Machinery & equipment*	219,923	229,426	478,501	499,305
Farm Credit stock	8,216	7,665	18,953	18,263
Other stock & certificates	15,277	16,778	56,013	60,671
Land & buildings*	533,450	546,219	1,359,266	1,431,811
Total Farm Assets	$1,300,890	$1,359,953	$3,114,756	$3,344,460
Personal cash, checking & savings	$5,379	$5,346	$5,390	$4,443
Cash value of life insurance	11,208	11,730	14,474	16,543
Nonfarm real estate	16,063	16,063	21,667	21,667
Auto (personal share)	2,044	2,806	5,417	5,667
Stocks & bonds	11,561	12,075	2,942	3,125
Household furnishings	10,000	9,438	6,750	9,417
All other	10,756	10,265	23,882	11,117
Nonfarm Assets**	$67,009	$67,723	$80,522	$71,978
Farm & Nonfarm Assets	$1,367,899	$1,427,676	$3,195,278	$3,416,438
LIABILITIES				
Accounts payable	$28,492	$35,785	$32,609	$44,241
Operating debt	16,794	16,317	100,530	107,401
Short term	7,486	6,483	27,178	24,545
Advanced government receipts	68	0	350	842
Current Portion:				
Intermediate	45,406	48,300	87,222	94,889
Long Term	11,848	12,242	36,659	38,928
Intermediate***	255,661	284,388	577,766	585,591
Long term*	223,814	210,816	580,417	633,194
Total Farm Liabilities	$589,569	$614,331	$1,442,731	$1,529,631
Nonfarm Liabilities**	4,764	3,917	7,624	7,286
Farm & Nonfarm Liabilities	$594,333	$618,248	$1,450,355	$1,536,917
Farm Net Worth (Equity Capital)	$711,321	$745,622	$1,672,025	$1,814,829
Farm & Nonfarm Net Worth	$773,566	$809,428	$1,744,923	$1,879,521

FINANCIAL MEASURES	200 to 299 Cows	More than 300 Cows
Percent equity	55%	54%
Debt/asset ratio-long term	.39	.44
Debt/asset ratio-intermeidate & current	.50	.47
Change in net worth with appreciation	$34,301	$142,804
Total farm debt per cow	$2,409	$2,549
Debt payments made per cow	$617	$500
Debt payments as % of milk sales	22%	18%
Amount available for debt service	$109,402	$294,373
Cash flow coverage ratio for 1995	0.97	1.15

*Includes discounted lease payments.

**Average of farms reporting nonfarm assets and liabilities for 1995.

***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 51.

SELECTED BUSINESS FACTORS BY HERD SIZE
321 New York Dairy Farms, 1995

Item — Farms with:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms	17	42	44	28	17
Cropping Program Analysis					
Total Tillable acres	133	152	198	240	300
Tillable acres rented*	44	58	66	71	133
Hay crop acres*	95	92	126	137	166
Corn silage acres*	13	27	38	45	73
Hay crop, tons DM/acre	1.6	1.9	2.2	2.6	2.5
Corn silage, tons/acre	10.5	13.0	13.0	14.6	13.5
Oats, bushels/acre	42	35	62	75	74
Forage DM per cow, tons	6.1	6.5	7.3	7.6	8.3
Tillable acres/cow	4.0	3.3	3.2	3.2	3.3
Fert. & lime expense/tillable acre	$8.41	$18.66	$19.82	$21.72	$26.16
Total machinery costs	$15,539	$20,666	$25,622	$33,385	$45,031
Machinery cost/tillable acre	$117	$136	$129	$139	$150
Dairy Analysis					
Number of cows	33	47	62	76	91
Number of heifers	24	35	48	65	74
Milk sold, lbs.	528,607	792,926	1,093,366	1,450,897	1,666,638
Milk sold/cow, lbs.	15,961	17,009	17,661	19,136	18,267
Operating cost of prod. milk/cwt.	$9.82	$10.44	$10.37	$9.70	$10.40
Total cost of prod. milk/cwt.	$17.19	$17.06	$15.96	$14.40	$15.30
Price/cwt. milk sold	$12.85	$12.95	$12.91	$12.91	$13.11
Purchased dairy feed/cow	$675	$650	$672	$710	$664
Purchased dairy feed/cwt. milk	$4.23	$3.82	$3.81	$3.71	$3.64
Purchased grain & concentrate as % of milk receipts	30%	28%	29%	27%	27%
Purchased feed & crop expense/cwt. milk	$4.66	$4.52	$4.53	$4.50	$4.59
Capital Efficiency					
Farm capital/worker	$164,061	$185,412	$203,562	$200,458	$222,610
Farm capital/cow	$7,977	$7,801	$7,856	$6,946	$7,310
Farm capital/tillable acre owned	$2,934	$3,867	$3,684	$3,115	$3,992
Real estate/cow	$4,587	$4,057	$4,015	$3,190	$3,236
Machinery investment/cow	$1,345	$1,474	$1,514	$1,371	$1,535
Asset turnover ratio	0.30	0.32	0.33	0.41	0.37
Labor Efficiency					
Worker equivalent	1.61	1.96	2.39	2.63	2.99
Operator/manager equivalent	1.15	1.16	1.21	1.38	1.41
Milk sold/worker, lbs.	328,467	404,415	457,678	552,423	556,528
Cows/worker	21	24	26	29	30
Work units/worker	219	247	273	305	325
Labor cost/cow	$809	$703	$648	$574	$534
Labor cost/tillable acre	$201	$215	$203	$181	$162

*Average of all farms, not only those reporting data.

Table 51. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
321 New York Dairy Farms, 1995

Item — Farms with:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms	72	30	36	35
Cropping Program Analysis				
Total Tillable acres	365	482	544	1,104
Tillable acres rented*	154	181	285	461
Hay crop acres*	194	224	252	454
Corn silage acres*	82	135	184	441
Hay crop, tons DM/acre	2.7	3.1	2.9	3.4
Corn silage, tons/acre	14.5	15.2	14.7	17.3
Oats, bushels/acre	66	39	55	52
Forage DM per cow, tons	7.8	8.0	6.9	7.3
Tillable acres/cow	3.0	2.8	2.3	1.9
Fert. & lime expense/tillable acre	$23.70	$24.30	$27.29	$29.31
Total machinery costs	$52,659	$75,791	$98,594	$200,559
Machinery cost/tillable acre	$145	$157	$181	$182
Dairy Analysis				
Number of cows	120	172	241	568
Number of heifers	93	139	173	421
Milk sold, lbs.	2,297,611	3,359,484	5,029,284	12,348,614
Milk sold/cow, lbs.	19,231	19,517	20,837	21,742
Operating cost of prod. milk/cwt.	$10.41	$10.68	$10.74	$10.27
Total cost of prod. milk/cwt.	$14.38	$14.04	$13.46	$12.68
Price/cwt. milk sold	$13.05	$13.08	$13.12	$13.00
Purchased dairy feed/cow	$693	$746	$822	$776
Purchased dairy feed/cwt. milk	$3.60	$3.82	$3.95	$3.57
Purchased grain & concentrate as % of milk receipts	27%	28%	29%	27%
Purchased feed & crop expense/cwt. milk	$4.44	$4.57	$4.58	$4.20
Capital Efficiency				
Farm capital/worker	$216,345	$231,526	$224,080	$257,396
Farm capital/cow	$6,712	$6,815	$5,511	$5,686
Farm capital/tillable acre owned	$3,784	$3,896	$5,117	$5,023
Real estate/cow	$2,889	$2,960	$2,236	$2,457
Machinery investment/cow	$1,350	$1,248	$931	$861
Asset turnover ratio	0.43	0.45	0.57	0.59
Labor Efficiency				
Worker equivalent	3.71	5.07	5.94	12.55
Operator/manager equivalent	1.60	1.96	1.99	2.20
Milk sold/worker, lbs.	619,709	663,201	847,071	984,168
Cows/worker	32	34	41	45
Work units/worker	338	353	402	443
Labor cost/cow	$567	$533	$510	$580
Labor cost/tillable acre	$187	$190	$226	$299

*Average of all farms, not only those reporting data.

SUPPLEMENTAL INFORMATION

Comparisons of business performance by types of housing and herd size, bST usage, rotational grazers, milking frequency, same farms over 10 years, and dairy region are presented in this section. Farm receipts and expenses per cow and per hundredweight of milk sold for different levels of milk output and herd size groups, plus additional data, are included.

A word of caution to the reader on the interpretation of these data. It is the combination of resources and practices, and implementation of business management strategies by farmers that determine business performance. Examining one factor, while not holding all others constant, can lead to erroneous conclusions of cause and effect relationships. As an example, farms on DHIA have higher pounds of milk sold per cow. Is it DHIA or is it that DHIA cooperators value production data and would acquire the data by other means and even without DHIA would have higher milk production than non-cooperators? Keep this distinction in mind when reviewing the following data.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have used as many of the same physical characteristics as possible for the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 52 on page 54 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 45 cows on the small conventional farms to 573 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. The smaller freestall farms showed average profits somewhat higher than the large conventional farm businesses.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 55-59. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

Comparison of Farms by bST Usage

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and were more profitable than farms not adopting bST (Table 58). Fifty-one farms used bST in both 1994 and 1995 and were also participants in the summary in 1992 and 1993. In comparison, seventy-seven farms did not use bST in 1994 and 1995, but were also participants in 1992 and 1993.

Farms not using bST attained only a small increase in pounds of milk sold per cow, from 18,010 pounds in 1992 to 18,414 pounds in 1995. Farms using bST increased milk sold per cow over 12 percent, from 19,864 pounds per cow in 1992 to 22,301 pounds per cow in 1995. Farms that used bST in both 1994 and 1995 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 4 cows, from an average of 78 cows in 1992 to 82 in 1995. Farms adopting bST increased by 86 cows, up to 332 cows in 1995. Net farm income was steady to lower on farms not adopting bST. Farms adopting bST saw net farm income increase by over $10,000 from 1992 to 1995. However, both groups saw a decrease in rate of return on equity capital and all capital over the time period studied. Both groups saw an increase in net worth, with the bST group increasing more rapidly. Debt to asset ratio and debt per cow changed very little over the study period.

Rotational Grazing Farms vs. Non-Rotational Grazing Farms

In 1995, 60 of the 321 DFBS cooperators were rotational grazing compared to 41 in 1994. This means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less. The farms using rotational grazing are compared with a control group of non-rotational grazing farms in Table 59. The control group is a random selection of non-grazing dairy farms of similar size; from the same and adjacent counties. Forty of the rotational grazing farms were DFBS cooperators in 1994 and 1995. Only 10 of the same non-rotational grazing farms are included in the 1994 and 1995 control group.

In 1995 average net farm income was somewhat higher on rotational grazing farms although the opposite occurred in 1994. In 1995, operating cost of producing milk was 23 cents per cwt. lower and total costs were 32 cents per cwt. below the costs of production on the control farms.

Comparison of Data, Same Farms, 1986 - 1995

Follow ten years of growth, change and progress made by 74 New York DFBS in Table 60, pages 62 and 63. Although milk receipts per cwt. increased less than 2.5 percent, net farm income without appreciation doubled from 1986 to 1995.

Receipts and Expenses per Hundredweight of Milk and per Cow

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for all 321 dairy farms, 203 dairy farms selling less than 20,000 pounds of milk per cow, and 118 dairy farms selling 20,000 pounds and more in Table 61 on page 64. Table 62 on page 65 provides the same list of average accrual receipts and expenses for 124 farms averaging less than 80 cows per farm, 117 farms with 80 to 180 cows and 80 farms with 180 cows or more.

These data are very useful for forward planning or budgeting when a farmer or planner does not have complete and accurate data from his or her own farm business. It is important to use the costs and returns per unit of output that most closely fit the level of production and herd size that is included in the plan. For example, an expansion budget for a 20,000 pound herd should include higher feed costs per cow than a budget for an 18,000 pound herd. Herds with more than 180 cows must budget higher labor costs per cow than smaller herds.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 63 and 64. The largest average farm size, highest average rate of milk production, and highest average farm profits came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 28.6 percent over the last 10 years and they produced milk for an average total cost of $12.80 per hundredweight in 1995, $1.68 below the average of all the other New York dairy regions. Total milk production has declined 22.6 percent over 10 years in the Northern Hudson and Southeastern New York Region. This is the region with the highest costs of producing milk and the second lowest returns to labor and management.

Comparison of Farms by Milking Frequency

Twenty percent of the 321 DFBS farms utilized three times per day (3X) milking in 1995, one percent more than in 1994. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 65.

In 1995, the 3X farms averaged 18 more cows per farm, sold 1 percent more milk per cow, cut the total cost of producing milk 19 cents per hundredweight but showed an average 9 percent decrease in net farm income, compared to the 3X farm averages for 1994. The 2X farms decreased milk output per cow 0.6 percent, increased total production costs 4 cents per hundredweight and decreased average net farm income $8,473 per farm in 1995 compared to 1994.

The 3X farms compared with the 2X farms averaged 18 percent more milk per cow and 56 percent additional milk per worker in 1995, very similar to the differences found in 1994. In 1995 the average total cost of producing milk was 10 percent lower on 3X farms than on 2X dairies. In 1994 the 3X farms showed a 9 percent cost advantage. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicate there are other important management differences contributing to higher profits.

Other Comparisons

Forty-nine dairy renter farms were smaller, on average, than the 321 owner-operated farms, but averaged nearly the same returns to labor and management as the average for 321 owned dairy farms (Table 66). However, the dairy renters received a lower average rate of return on equity capital compared to the dairy farm owners. E.B. 96-16 contains detailed information on Eastern New York dairy renters. Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 67. Additional data for the top 10 percent of farms is presented in many of the first 41 tables of this publication. Summary data for the 321 specialized dairy farms are presented in Table 68.

Table 52.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
294 New York Dairy Farms, 1995

Item	Farms with:	Conventional <= 60 Cows	Conventional >60 Cows	Freestall <=150 Cows	Freestall 151-300 Cows	Freestall ≥300 Cows
Number of farms		67	68	69	56	34
Cropping Program Analysis						
Total Tillable acres		149	275	328	525	1,110
Tillable acres rented*		56	100	136	243	473
Hay crop acres*		97	163	171	242	453
Corn silage acres*		24	55	77	164	444
Hay crop, tons DM/acre		1.9	2.5	2.7	3.0	3.4
Corn silage, tons/acre		12.9	13.3	14.4	14.8	17.3
Oats, bushels/acre		48	66	58	44	54
Forage DM per cow, tons		6.5	7.8	7.9	7.1	7.3
Tillable acres/cow		3.3	3.3	3.0	2.4	1.9
Fert. & lime exp./tillable acre		$16.62	$21.13	$25.44	$26.72	$29.61
Total machinery costs		$19,975	$37,128	$48,984	$90,300	$201,266
Machinery cost/tillable acre		$134	$135	$151	$172	$181
Dairy Analysis						
Number of cows		45	84	107	216	573
Number of heifers		34	69	82	164	423
Milk sold, lbs.		760,125	1,563,428	2,027,572	4,438,075	12,493,862
Milk sold/cow, lbs.		16,731	18,518	18,970	20,589	21,796
Operating cost of prod. milk/cwt.		$10.20	$10.23	$10.54	$10.76	$10.25
Total cost of prod. milk/cwt.		$16.84	$14.86	$14.74	$13.67	$12.64
Price/cwt. milk sold		$12.91	$13.01	$13.13	$13.12	$12.99
Purchased dairy feed/cow		$652	$660	$700	$807	$775
Purchased dairy feed/cwt. milk		$3.89	$3.56	$3.69	$3.92	$3.55
Purchased grain & conc. as % milk rec.		29%	27%	27%	29%	27%
Purchased feed & crop exp./cwt. milk		$4.56	$4.34	$4.59	$4.60	$4.19
Capital Efficiency						
Farm capital/worker		$181,342	$204,518	$233,993	$230,331	$258,006
Farm capital/cow		$7,733	$7,190	$7,016	$5,920	$5,657
Farm capital/tillable acre owned		$3,775	$3,468	$3,906	$4,526	$5,083
Real estate/cow		$4,063	$3,317	$3,158	$2,503	$2,436
Machinery investment/cow		$1,466	$1,450	$1,419	$986	$853
Asset turnover ratio		0.32	0.38	0.41	0.53	0.59
Labor Efficiency						
Worker equivalent		1.94	2.97	3.21	5.54	12.57
Operator/manager equivalent		1.17	1.33	1.56	1.73	2.17
Milk sold/worker, lbs.		392,608	526,924	632,592	800,951	994,087
Cows/worker		23	28	33	39	46
Labor cost/cow		$707	$584	$553	$520	$580
Labor cost/tillable acre		$215	$179	$182	$214	$299
Profitability & Balance Sheet Analysis						
Net farm income (without appreciation)		$10,662	$27,053	$29,071	$62,427	$206,228
Labor & management income/operator		$-6,342	$43	$860	$13,170	$54,041
Rate Return on all capital with appreciation		-2.3%	1.3%	2.4%	5.2%	9.4%
Farm debt/cow		$2,138	$1,853	$2,405	$2,407	$2,518
Percent equity		71%	73%	65%	58%	54%

*Average of all farms, not only those reporting data.

Table 53.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS

67 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
3.20	58	1,116,570	21,502	3.5	21	39	670,470
2.57	55	982,835	19,540	2.9	18	32	563,955
2.11	52	889,183	18,817	2.5	16	30	508,822
2.00	50	818,832	18,148	2.3	14	28	454,017
1.87	46	762,063	17,422	2.0	13	25	419,654
1.72	44	720,796	16,469	1.8	12	22	373,175
1.57	42	669,529	15,382	1.7	11	21	346,465
1.50	39	597,559	14,539	1.3	10	19	312,103
1.37	36	535,110	13,368	1.2	8	17	262,792
1.20	28	402,284	10,304	0.9	5	14	189,393

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$278	15%	$201	$755	$358	$2.57
416	20	293	881	514	3.29
487	23	325	962	588	3.79
520	26	366	1,024	640	4.05
566	28	402	1,102	706	4.30
626	29	422	1,172	778	4.61
677	30	455	1,221	849	4.90
734	32	502	1,277	899	5.14
811	36	600	1,417	971	5.76
992	44	818	1,724	1,200	6.56

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$2,775	$6.35	$12.93	$40,149	$898	$19,515	$39,912
2,555	7.91	14.15	26,289	605	8,128	19,432
2,450	8.67	14.80	21,507	428	6,050	11,943
2,348	9.30	15.41	15,826	333	1,532	8,794
2,268	9.93	15.73	11,631	270	-2,987	5,960
2,110	10.38	16.26	9,116	208	-6,640	1,696
1,992	10.79	17.19	5,005	112	-12,236	-5,207
1,851	11.55	18.71	-4,188	-94	-21,253	-9,317
1,712	12.53	20.45	-9,409	-228	-27,862	-18,815
1,280	13.81	25.49	-18,464	-479	-44,633	-30,642

Table 54.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS

68 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.92	136	2,430,052	22,384	4.9	22	49	853,220
3.89	107	2,056,068	20,798	3.6	18	37	687,405
3.42	98	1,801,505	20,239	3.1	16	33	618,788
3.06	87	1,648,270	19,664	2.8	15	31	578,386
2.90	78	1,504,222	18,979	2.4	14	29	557,226
2.58	74	1,400,199	18,582	2.2	13	28	531,807
2.49	68	1,298,599	17,925	2.0	12	27	500,757
2.35	65	1,235,093	16,883	1.9	11	24	446,692
2.12	64	1,158,481	15,411	1.7	9	21	399,585
1.65	62	957,357	14,147	1.3	6	17	298,742

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$335	14%	$212	$683	$505	$2.79
435	18	315	844	594	3.23
490	21	344	884	640	3.56
558	23	374	930	684	3.98
598	26	404	969	749	4.23
656	28	441	1,027	832	4.43
693	31	491	1,121	878	4.63
764	31	523	1,182	932	4.83
846	34	563	1,268	1,014	5.29
1,022	39	684	1,415	1,214	6.36

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$2,926	$6.79	$12.40	$87,656	$1,006	$32,253	$70,650
2,693	8.17	13.11	53,325	646	19,865	39,931
2,613	9.18	13.47	42,377	517	14,407	24,514
2,534	9.58	13.89	35,885	423	9,185	14,916
2,465	9.89	14.34	28,572	356	3,870	8,131
2,404	10.25	14.88	19,770	228	-3,049	1,044
2,320	10.83	15.59	12,264	165	-12,034	-8,929
2,176	11.27	16.38	5,880	72	-23,384	-16,430
2,030	12.00	17.00	-3,258	-46	-31,508	-26,729
1,882	13.71	18.86	-23,460	-314	-59,820	-60,370

Table 55.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS

69 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
5.44	142	2,957,949	24,252	5.1	21	60	1,025,375
4.35	134	2,710,333	21,428	3.9	18	44	844,297
3.92	128	2,508,000	20,047	3.3	17	41	758,138
3.48	123	2,348,502	19,586	2.9	16	37	696,409
3.22	114	2,166,542	19,015	2.8	15	34	650,447
3.07	107	1,998,898	18,579	2.6	14	32	613,804
2.73	100	1,804,910	17,842	2.4	13	30	586,143
2.32	88	1,581,246	16,689	2.1	12	29	538,567
1.92	73	1,265,897	15,793	1.7	11	26	480,795
1.32	52	751,092	12,993	1.1	10	23	368,345

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$382	16%	$204	$642	$534	$3.04
521	22	293	744	688	3.88
569	23	335	829	729	4.13
600	25	380	887	769	4.31
625	27	421	945	823	4.51
661	28	451	1,000	868	4.73
706	29	499	1,095	899	4.86
748	31	563	1,178	965	5.09
834	33	611	1,245	1,051	5.35
975	37	766	1,443	1,211	6.02

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,157	$7.66	$11.63	$88,760	$772	$49,497	$65,163
2,781	8.88	13.19	62,353	609	23,550	38,389
2,638	9.41	14.00	52,706	500	13,528	27,797
2,559	9.84	14.16	42,686	401	9,448	19,229
2,492	10.11	14.42	35,777	354	4,789	10,890
2,428	10.61	14.77	25,901	272	-1,925	4,352
2,327	11.12	15.32	11,541	116	-9,176	552
2,232	11.56	16.18	-358	-1	-17,625	-5,069
2,078	12.33	17.08	-10,185	-97	-29,406	-18,255
1,732	13.51	18.43	-26,410	-305	-45,511	-44,000

Table 56.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
56 Freestall Barn Dairy Farms with 151-300 Cows, New York, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
8.11	290	6,658,798	24,927	5.2	22	56	1,108,890
7.01	254	5,713,413	23,249	4.1	19	51	1,010,447
6.26	241	5,114,805	22,243	3.6	18	49	941,529
5.84	231	4,601,857	21,310	3.3	16	42	886,593
5.61	219	4,282,657	20,808	2.9	15	39	820,679
5.26	201	3,983,158	19,804	2.7	14	36	775,036
4.82	189	3,743,536	18,853	2.5	13	35	725,997
4.25	179	3,502,068	18,118	2.2	12	33	666,957
3.96	166	3,239,384	17,306	1.7	10	30	614,691
3.36	159	2,795,824	15,997	1.2	3	27	525,722

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$494	19%	$217	$635	$630	$3.30
618	23	262	721	794	3.75
668	25	331	788	839	4.03
716	26	362	820	876	4.24
745	28	386	881	902	4.55
786	30	423	942	935	4.68
826	30	466	994	974	4.87
856	32	494	1,070	1,054	5.19
897	34	536	1,142	1,106	5.34
973	37	654	1,310	1,192	5.83

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,331	$7.96	$10.95	$186,160	$864	$95,164	$144,572
3,069	9.50	12.48	121,682	536	50,181	108,786
2,970	9.87	12.90	92,523	433	28,686	66,921
2,788	10.31	13.05	77,745	355	22,827	40,000
2,669	10.57	13.46	53,375	277	14,847	22,733
2,558	10.89	13.92	38,496	194	2,857	7,412
2,475	11.23	14.16	27,801	125	-4,795	-2,413
2,375	11.63	14.54	14,994	72	-10,777	-9,829
2,271	12.07	15.16	5,641	33	-26,567	-37,956
2,086	12.91	16.22	-33,266	-154	-62,013	-83,503

Table 57.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
34 Freestall Barn Dairy Farms with 300 or More Cows, New York, 1995

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
26.37	1,474	31,629,692	24,975	5.6	22	59	1,315,065
15.65	726	16,568,552	23,563	4.5	21	50	1,108,188
13.90	586	12,395,786	22,714	3.8	19	47	1,027,822
11.56	476	10,646,886	21,776	3.5	18	44	961,574
9.83	426	9,473,879	21,582	3.3	18	43	941,375
9.36	399	8,803,496	21,380	2.8	17	42	921,860
9.06	363	8,131,190	21,238	2.6	16	40	857,407
8.66	338	7,243,944	20,638	2.5	13	38	821,803
8.24	316	6,726,055	19,753	2.3	12	37	738,236
7.35	305	6,230,654	18,841	1.9	10	32	687,101

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$548	20%	$239	$723	$725	$3.45
621	22	261	819	807	3.73
652	24	298	850	848	3.91
691	25	320	883	880	3.97
742	26	339	916	905	4.13
775	27	357	940	940	4.36
807	28	368	975	962	4.46
837	29	396	1,019	997	4.55
882	31	463	1,097	1,041	4.76
919	32	576	1,178	1,144	5.16

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,347	$7.91	$11.08	$498,538	$761	$285,694	$521,948
3,085	9.29	11.72	355,590	561	125,530	241,267
2,943	9.46	12.13	255,215	453	87,171	173,734
2,862	9.88	12.42	210,999	413	67,983	134,882
2,800	10.10	12.53	163,907	369	44,335	111,353
2,774	10.19	12.69	139,850	356	33,198	85,990
2,731	10.54	12.96	122,533	281	25,289	41,489
2,627	10.93	13.25	101,876	201	19,665	29,751
2,556	11.16	13.55	67,632	165	8,585	-3,450
2,454	11.60	14.31	-18,932	-48	-53,540	-67,952

Table 58.

bST NON-USERS VS. USERS
Same 128 Farms, 1992 - 1995

	77 Farms Not Using bST in 1994 & 1995				51 Farms Using bST in 1994 & 1995			
Selected Factors	1992	1993	1994	1995	1992	1993	1994	1995
Size of Business								
Average number of cows	78	79	80	82	246	278	304	332
Average number of heifers	59	62	64	66	188	207	231	248
Milk sold, lbs.	1,403,604	1,430,314	1,444,198	1,507,545	4,886,655	5,567,170	6,645,133	7,393,995
Worker equivalent	2.62	2.60	2.60	2.79	6.18	6.69	7.24	7.81
Total tillable acres	250	252	257	259	563	602	631	662
Rates of Production								
Milk sold per cow, lbs.	18,010	18,186	18,108	18,414	19,864	20,043	21,853	22,301
Hay DM per acre, tons	2.47	2.35	2.72	2.34	3.47	3.39	3.53	3.35
Corn silage per acre, tons	13	14	16	13	16	16	17	17
Labor Efficiency								
Cows per worker	30	30	31	29	40	42	42	42
Milk sold per worker, lbs.	534,910	549,761	555,931	541,017	791,017	832,345	917,887	947,280
Cost Control								
Grain & conc. purchased as % of milk sales	28%	28%	27%	27%	27%	28%	27%	26%
Dairy feed & crop expense per cwt. milk	$4.69	$4.57	$4.61	$4.42	$4.57	$4.50	$4.42	$4.12
Labor and machinery costs per cow	$1,013	$1,033	$1,058	$1,060	$960	$955	$984	$975
Operating cost of producing milk per cwt.	$10.13	$9.98	$10.11	$10.14	$10.31	$10.25	$10.48	$10.36
Capital Efficiency (average for year)								
Farm capital per cow	$7,099	$7,287	$7,286	$7,345	$6,359	$6,172	$6,188	$6,059
Machinery and equipment per cow	$1,456	$1,523	$1,544	$1,573	$960	$936	$959	$963
Asset turnover ratio	0.41	0.39	0.39	0.37	0.53	0.52	0.56	0.56
Profitability								
Net farm income without appreciation	$30,952	$28,309	$30,795	$27,397	$113,164	$105,091	$130,654	$123,761
Net farm income with appreciation	$40,820	$36,855	$36,817	$29,013	$144,370	$122,877	$156,033	$154,174
Labor & management income per op/mgr	$5,517	$2,655	$3,867	$370	$42,214	$33,955	$47,369	$38,508
Rate return on equity capital w/appreciation	2.81%	1.50%	1.42%	-0.92%	10.4%	7.5%	9.8%	8.5%
Rate return on all capital w/appreciation	4.09%	2.97%	2.88%	1.32%	8.8%	7.1%	8.5%	8.1%
Financial Summary (end of year)								
Farm net worth	$404,043	$421,057	$429,265	$441,050	$996,163	$1,046,783	$1,143,512	$1,215,455
Debt to asset ratio	0.29	0.27	0.27	0.27	0.39	0.42	0.41	0.41
Farm debt per cow	$2,062	$1,938	$1,964	$1,919	$2,403	$2,512	$2,516	$2,433

Table 59.

ROTATIONAL GRAZING FARMS VS. NON-ROTATIONAL GRAZING FARMS
New York State Dairy Farms, 1994 & 1995

Item	Rotational Grazing Farms		Non-Rotational Grazing Farms	
	1994	1995	1994	1995
Number of farms	41	60	41	60
Business Size & Production				
Number of cows	72	69	71	70
Number of heifers	55	51	60	56
Milk sold, lbs.	1,323,408	1,221,804	1,318,148	1,280,851
Milk sold/cow, lbs.	18,337	17,609	18,470	18,399
Milk plant test, % butterfat	3.6%	3.6%	3.6%	3.7%
Tillable acres, total	227	217	227	223
Hay crop, tons DM/acre	2.6	2.1	2.5	2.4
Corn silage, tons/acre	14.8	12.8	16.5	14.0
Forage DM/cow, tons	7.0	6.0	9.0	7.5
Labor & Capital Efficiency				
Worker equivalent	2.44	2.44	2.46	2.46
Milk sold/worker, lbs.	542,195	500,996	536,374	519,733
Cows/worker	29	28	29	28
Farm capital/worker	$204,584	$183,256	$200,935	$204,015
Farm capital/cow	$6,916	$6,440	$6,916	$7,224
Farm capital/cwt. milk	$38	$37	$37	$39
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$1.20	$0.96	$1.20	$0.93
Grain & concentrate	$3.79	$3.58	$4.13	$3.77
Purchased roughage	$0.14	$0.13	$0.05	$0.19
Replacements purchased	$0.10	$0.06	$0.13	$0.18
Vet & medicine	$0.32	$0.33	$0.33	$0.34
Milk marketing	$0.69	$0.68	$0.76	$0.77
Other dairy expenses	$0.87	$0.89	$0.77	$0.89
Operating cost/cwt.	$9.96	$9.93	$9.94	$10.16
Total labor cost/cwt.	$3.29	$3.41	$3.32	$3.28
Operator resources/cwt.	$3.53	$3.38	$3.39	$3.52
Total cost/cwt.	$15.04	$14.90	$14.82	$15.22
Average farm price/cwt.	$13.16	$12.87	$13.31	$12.92
Return over total costs/cwt.	$-1.88	$-2.03	$-1.51	$-2.30
Related Cost Factors				
Hired labor/cow	$219	$169	$221	$171
Total labor/cow	$602	$600	$613	$603
Purchased dairy feed/cow	$720	$652	$772	$729
Purchased grain & concentrate as % of milk receipts	29%	28%	31%	29%
Vet & medicine/cow	$58	$59	$62	$63
Machinery costs/cow	$467	$425	$483	$433
Profitability Analysis				
Net farm income (without appreciation)	$25,778	$21,531	$28,168	$19,934
Labor & management income/operator	$4,504	$1,989	$5,327	$-1,646
Rates of return on:				
Equity capital with appreciation	-0.5%	-2.7%	1.5%	-1.9%
All capital with appreciation	2.2%	1.0%	3.1%	0.9%

Table 60.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 74 New York Dairy Farms, 1986 - 1995

Selected Factors	1986	1987	1988	1989
Milk receipts per cwt. milk	$12.68	$12.77	$13.17	$14.56
Size of Business				
Average number of cows	112	119	125	133
Average number of heifers	91	92	99	102
Milk sold, cwt.	19,043	20,654	22,308	24,530
Worker equivalent	3.36	3.40	3.58	3.77
Total tillable acres	322	325	336	341
Rates of Production				
Milk sold per cow, lbs.	17,015	17,392	17,845	18,397
Hay DM per acre, tons	3.0	3.0	2.9	2.8
Corn silage per acre, tons	15	17	14	13
Labor Efficiency				
Cows per worker	33	35	35	35
Milk sold per worker, lbs.	566,767	606,702	623,860	650,683
Cost Control				
Grain & concen. purchased as % of milk sales	22%	23%	27%	26%
Dairy feed & crop expense per cwt. milk	$3.86	$4.03	$4.42	$4.70
Operating cost of producing cwt. milk	$9.13	$8.62	$8.96	$9.97
Total cost of producing cwt. milk	$13.25	$12.47	$12.74	$13.72
Hired labor cost per cwt.	$1.49	$1.64	$1.68	$1.93
Interest paid per cwt.	$1.00	$0.89	$0.89	$0.88
Labor & machinery costs per cow	$798	$818	$834	$905
Capital Efficiency				
Farm capital per cow	$5,744	$5,814	$5,979	$6,104
Machinery & equipment per cow	1,055	1,047	1,043	1,093
Real estate per cow	2,685	2,691	2,726	2,713
Livestock investment per cow	1,154	1,180	1,244	1,309
Asset turnover ratio	0.46	0.50	0.50	0.54
Profitability				
Net farm income without appreciation	$37,550	$57,081	$64,180	$81,156
Net farm income with appreciation	52,602	84,084	84,703	112,040
Labor & management income per operator/manager	11,460	25,513	28,595	38,548
Rate return on:				
Equity capital with appreciation	6.0%	12.3%	11.1%	14.3%
All capital with appreciation	6.9%	10.8%	10.0%	12.4%
All capital without appreciation	4.5%	6.8%	7.3%	8.6%
Financial Summary, End Year				
Farm net worth	$427,437	$480,093	$520,096	$592,153
Change in net worth with appreciation	$23,191	$54,168	$46,949	$70,430
Debt to asset ratio	0.35	0.33	0.33	0.30
Farm debt per cow	$2,029	$1,953	$1,984	$1,823

Table 60. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 74 New York Dairy Farms, 1986 - 1995

1990	1991	1992	1993	1994	1995
$14.94	$13.05	$13.60	$13.19	$13.42	$12.99
139	148	167	185	199	213
112	123	125	137	153	162
25,831	27,743	32,276	35,890	41,429	44,738
3.93	4.19	4.51	4.83	4.96	5.18
383	395	401	421	440	460
18,587	18,812	19,353	19,356	20,785	20,984
3.1	2.8	3.1	3.1	3.3	3.0
14	14	15	16	17	17
35	35	37	38	40	41
656,993	662,024	716,367	742,809	835,046	863,678
27%	28%	27%	28%	27%	26%
$5.02	$4.68	$4.50	$4.44	$4.36	$4.16
$10.86	$10.18	$10.11	$10.14	$10.11	$10.14
$14.81	$14.09	$13.57	$13.51	$13.29	$13.26
$2.15	$2.21	$2.23	$2.28	$2.16	$2.10
$0.91	$1.01	$0.79	$0.80	$0.79	$0.89
$1,033	$1,000	$981	$982	$993	$964
$6,473	$6,699	$6,435	$6,306	$6,363	$6,290
1,172	1,228	1,154	1,124	1,150	1,133
2,903	3,053	2,941	2,876	2,880	2,787
1,380	1,426	1,406	1,393	1,428	1,428
0.51	0.47	0.51	0.49	0.52	0.51
$70,950	$40,722	$74,436	$65,579	$86,856	$75,432
85,610	64,001	97,938	82,538	107,504	98,040
27,226	4,510	26,672	18,212	30,929	19,866
8.0%	4.1%	8.6%	5.7%	8.1%	6.3%
8.0%	5.5%	7.8%	6.0%	7.7%	6.8%
6.3%	3.1%	5.6%	4.6%	6.0%	5.1%
$616,529	$638,899	$702,437	$739,494	$800,759	$842,625
$22,352	$13,126	$49,492	$31,383	$51,863	$42,551
0.35	0.37	0.37	0.39	0.39	0.38
$2,333	$2,358	$2,341	$2,415	$2,457	$2,350

Table 61.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
321 New York Dairy Farms, 1995

Item	321 Dairy Farms		203 Dairy Farms Milk/Cow <20,000#		118 Dairy Farms Milk/Cow ≥20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,640	$13.03	$2,311	$13.06	$2,879	$13.01
Dairy cattle	224	1.10	204	1.15	238	1.07
Dairy calves	27	0.13	23	0.13	30	0.14
Other livestock	5	0.03	8	0.04	4	0.02
Crops	50	0.25	29	0.16	66	0.30
Government receipts	34	0.17	41	0.23	29	0.13
All other	30	0.14	28	0.16	31	0.14
TOTAL ACCRUAL RECEIPTS	$3,010	$14.85	$2,644	$14.93	$3,277	$14.81
ACCRUAL EXPENSES						
Labor: Hired	$360	$1.78	$247	$1.39	$443	$2.00
Feed: Dairy grain & concentrate	724	3.57	660	3.73	770	3.48
Dairy roughage	26	0.13	28	0.16	24	0.11
Nondairy	1	0.01	1	0.01	1	0.00
Machinery:Machine hire, rent & lease	38	0.19	35	0.20	41	0.18
Machinery repairs & vehicle expense	134	0.66	132	0.75	136	0.61
Fuel, oil & grease	55	0.27	58	0.33	53	0.24
Livestock: Replacement livestock	29	0.15	28	0.16	30	0.14
Breeding	31	0.15	30	0.17	32	0.15
Vet & medicine	79	0.39	63	0.35	91	0.41
Milk marketing	142	0.70	131	0.74	151	0.68
Bedding	31	0.15	15	0.08	42	0.19
Milking supplies	65	0.32	62	0.35	67	0.30
Cattle lease & rent	4	0.02	1	0.01	7	0.03
Custom boarding	17	0.08	7	0.04	24	0.11
Other livestock expense	71	0.35	51	0.29	86	0.39
Crops: Fertilizer & lime	63	0.31	64	0.36	62	0.28
Seeds & plants	37	0.18	37	0.21	38	0.17
Spray & other crop expense	41	0.20	36	0.20	44	0.20
Real Estate: Land, building & fence repair	33	0.16	26	0.15	37	0.17
Taxes	55	0.27	68	0.38	46	0.21
Rent & lease	48	0.24	45	0.25	50	0.23
Other: Insurance	35	0.17	40	0.23	31	0.14
Utilities (farm share)	77	0.38	79	0.45	76	0.34
Interest paid	191	0.94	184	1.04	196	0.89
Miscellaneous	33	0.16	27	0.15	38	0.17
TOTAL OPERATING EXPENSES	$2,421	$11.95	$2,155	$12.18	$2,615	$11.82
Expansion livestock	57	0.28	57	0.32	56	0.25
Machinery depreciation	121	0.60	128	0.72	116	0.52
Building depreciation	94	0.47	75	0.42	108	0.49
TOTAL ACCRUAL EXPENSES	$2,693	$13.28	$2,415	$13.64	$2,895	$13.08

Table 62.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
321 New York Dairy Farms, 1995

Item	124 Dairy Farms with <80 Cows		117 Dairy Farms with 80-180 Cows		80 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,273	$12.93	$2,514	$13.07	$2,782	$13.03
Dairy cattle	163	0.93	196	1.02	250	1.17
Dairy calves	27	0.15	26	0.14	27	0.13
Other livestock	2	0.01	6	0.03	6	0.03
Crops	9	0.05	60	0.31	55	0.26
Government receipts	37	0.21	42	0.22	30	0.14
All other	38	0.21	31	0.16	28	0.13
TOTAL ACCRUAL RECEIPTS	$2,549	$14.49	$2,875	$14.95	$3,178	$14.89
ACCRUAL EXPENSES						
Labor: Hired	$143	$0.81	$273	$1.42	$451	$2.11
Feed: Dairy grain & concentrate	638	3.63	686	3.57	761	3.56
Dairy roughage	34	0.19	19	0.10	27	0.13
Nondairy	2	0.01	2	0.01	0	0.00
Machinery:Machine hire, rent & lease	35	0.20	40	0.21	39	0.18
Mach. repairs & vehicle expense	133	0.76	150	0.78	127	0.59
Fuel, oil & grease	58	0.33	63	0.33	51	0.24
Livestock: Replacement livestock	33	0.18	36	0.19	25	0.12
Breeding	40	0.23	35	0.18	28	0.13
Vet & medicine	59	0.33	73	0.38	86	0.40
Milk marketing	141	0.80	148	0.77	140	0.66
Bedding	7	0.04	18	0.09	42	0.19
Milking supplies	65	0.37	68	0.36	63	0.30
Cattle lease & rent	0	0.00	0	0.00	7	0.03
Custom boarding	7	0.04	17	0.09	20	0.09
Other livestock expense	56	0.32	57	0.29	81	0.38
Crops: Fertilizer & lime	60	0.34	74	0.38	59	0.27
Seeds & plants	33	0.19	44	0.23	35	0.16
Spray & other crop expense	28	0.16	45	0.23	42	0.20
Real Estate: Land, building & fence repair	34	0.20	34	0.18	31	0.15
Taxes	85	0.48	70	0.36	41	0.19
Rent & lease	25	0.14	42	0.22	56	0.26
Other: Insurance	45	0.26	44	0.23	28	0.13
Utilities (farm share)	94	0.54	84	0.44	70	0.33
Interest paid	151	0.86	175	0.91	207	0.97
Miscellaneous	31	0.18	30	0.16	35	0.16
TOTAL OPERATING EXPENSES	$2,037	$11.59	$2,327	$12.10	$2,552	$11.95
Expansion livestock	23	0.13	40	0.21	72	0.34
Machinery depreciation	131	0.75	134	0.69	113	0.53
Building depreciation	75	0.43	66	0.34	112	0.52
TOTAL ACCRUAL EXPENSES	$2,266	$12.90	$2,567	$13.34	$2,849	$13.34

Table 63.

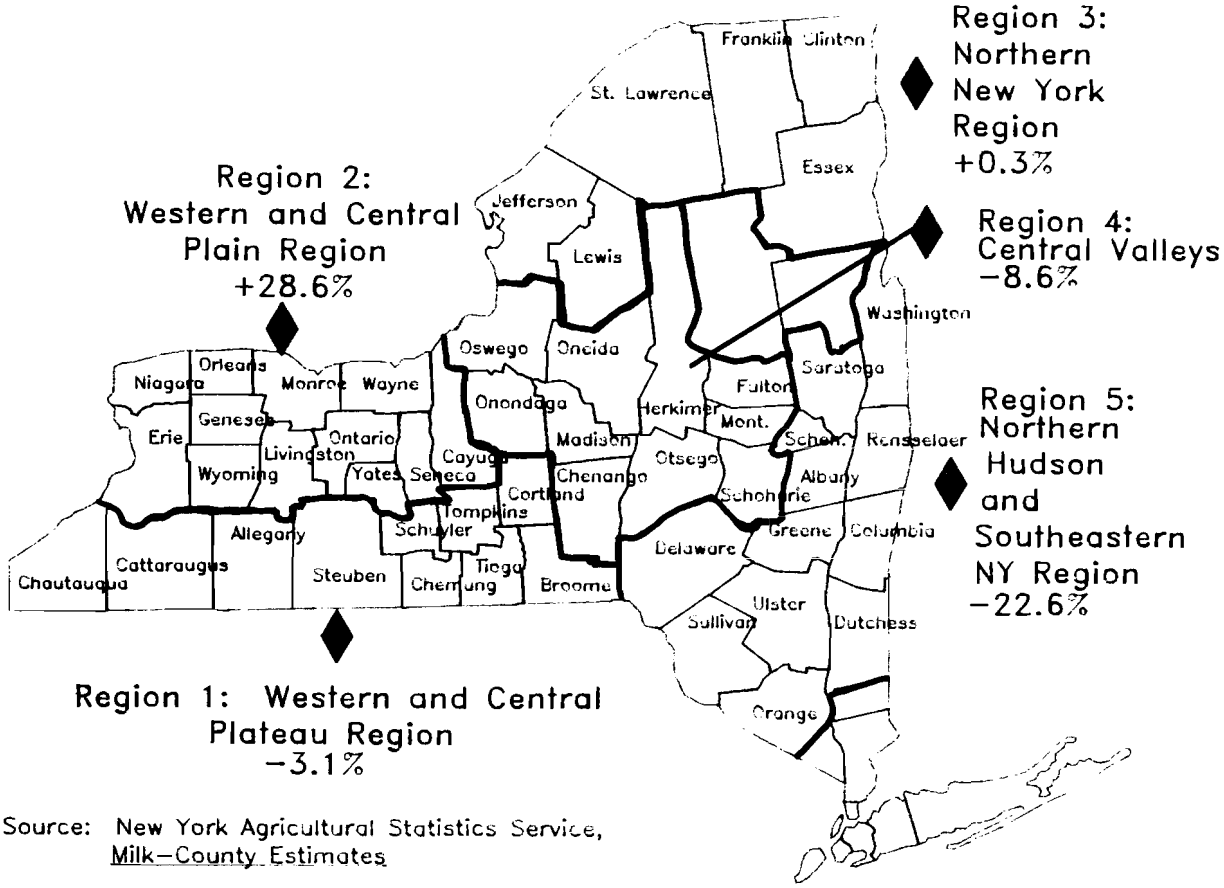
COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
321 New York Dairy Farms, 1995

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	67	77	40	57	80
ACCRUAL EXPENSES					
Hired labor	$35,325	$138,480	$26,379	$22,216	$39,072
Feed	84,790	239,448	77,128	72,009	89,281
Machinery	26,975	65,480	26,575	24,717	29,455
Livestock	43,659	157,351	42,055	41,537	62,435
Crops	14,167	42,271	16,257	15,886	18,544
Real estate	17,732	36,625	16,078	16,937	16,664
Other	36,178	106,201	38,510	35,396	38,406
Total Operating Expenses	$258,826	$785,856	$242,982	$228,698	$293,857
Expansion livestock	4,373	27,042	2,140	2,934	3,363
Machinery depreciation	15,378	33,219	16,396	14,607	14,172
Building depreciation	10,155	35,609	8,921	6,658	8,467
Total Accrual Expenses	$288,732	$881,726	$270,439	$252,897	$319,859
ACCRUAL RECEIPTS					
Milk sales	$274,693	$860,166	$273,770	$256,622	$313,830
Livestock	28,437	90,474	19,915	20,732	28,470
Crops	1,327	24,454	9,744	1,802	1,359
All other	8,720	16,708	6,545	7,542	8,929
Total Accrual Receipts	$313,177	$991,802	$309,974	$286,698	$352,588
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$24,445	$110,076	$39,535	$33,801	$32,729
Net farm income (w/ appreciation)	$38,933	$137,234	$48,939	$35,324	$34,561
Labor & management income	$-2,859	$58,672	$12,131	$9,200	$-1,939
Number of operators	1.43	1.74	1.50	1.61	1.41
Labor & mgmt. income/operator	$-1,999	$33,720	$8,087	$5,714	$-1,375
BUSINESS FACTORS					
Worker equivalent	3.59	7.35	3.18	3.28	3.64
Number of cows	114	311	110	103	118
Number of heifers	96	221	86	79	94
Acres of hay crops*	183	254	182	156	192
Acres of corn silage*	84	214	77	75	101
Total tillable acres	325	635	331	297	341
Pounds of milk sold	2,136,921	6,669,893	2,122,197	1,953,635	2,322,787
Pounds of milk sold/cow	18,814	21,471	19,240	19,019	19,651
Tons hay crop dry matter/acre	2.3	3.7	2.9	2.7	2.2
Tons corn silage/acre	12.9	18.3	15.8	13.1	13.2
Cows/worker	32	42	35	31	32
Pounds of milk sold/worker	596,073	907,553	667,532	596,075	638,438
% grain & conc. of milk receipts	29%	27%	27%	27%	28%
Feed & crop expense/cwt. milk	$4.63	$4.22	$4.40	$4.48	$4.64
Fertilizer & lime/crop acre	$19.91	$27.08	$20.35	$27.43	$27.18
Machinery cost/tillable acre	$149	$177	$152	$157	$149

*Average of all farms in the region, not only those producing the crop.

Figure 2.

Percent Increase in Milk Production, Five Regions in New York, 1985-1995



Source: New York Agricultural Statistics Service, Milk–County Estimates

Table 64.

MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York, 1995

Item	Region* 1	2	3	4	5
Milk Production**			(million pounds)		
1985	2,213.4	2,382.9	2,184.5	3,037.8	1,884.8
1995	2,145.4	3,065.2	2,191.0	2,777.8	1,459.0
Percent change	-3.1%	+28.6%	+0.3%	-8.6%	-22.6%
Cost of Producing Milk			($ per hundredweight milk)		
Operating cost	$10.52	$10.21	$9.84	$10.32	$11.13
Total cost	14.54	12.80	14.01	14.50	14.86
Average price received	12.85	12.90	12.90	13.14	13.51
Return per cwt. to operator labor, management & capital	$0.95	$1.60	$1.68	$1.59	$1.20

*See Figure 2 for region descriptions.
**Source: New York Agricultural Statistics Service, Milk-County Estimates.

Table 65.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 1994 & 1995

Item	2x/Day Milking		3x/Day Milking	
	1994	1995	1994	1995
Number of farms	244	239	61	63
Business Size & Production				
Number of cows	102	103	323	341
Number of heifers	81	81	238	253
Milk sold, lbs.	1,907,516	1,898,410	6,987,895	7,470,752
Milk sold/cow, lbs.	18,620	18,517	21,654	21,898
Milk plant test, % butterfat	3.64%	3.67%	3.64%	3.61%
Tillable acres, total	311	304	672	715
Hay crop, tons DM/acre	2.7	2.5	3.3	3.1
Corn silage, tons/acre	15.6	14.1	17.2	16.4
Forage DM/cow, tons	8.2	7.6	7.3	7.0
Labor & Capital Efficiency				
Worker equivalent	3.00	3.23	7.61	8.16
Milk sold/worker, lbs.	635,526	587,980	917,723	915,617
Cows/worker	34	32	42	42
Farm capital/worker	$235,295	$212,503	$248,552	$243,419
Farm capital/cow	$6,897	$6,694	$5,865	$5,821
Farm capital/cwt. milk	$37.02	$36.14	$27.08	$26.59
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$1.43	$1.34	$2.19	$2.15
Grain & concentrate	$3.77	$3.63	$3.81	$3.49
Purchased roughage	$0.09	$0.09	$0.12	$0.16
Replacements purchased	$0.23	$0.16	$0.21	$0.14
Vet & medicine	$0.37	$0.36	$0.42	$0.42
Milk marketing	$0.74	$0.77	$0.61	$0.65
Other dairy expenses	$0.76	$0.80	$0.99	$1.03
Operating costs/cwt.	$10.26	$10.42	$10.69	$10.50
Total labor costs/cwt.	$2.92	$3.05	$2.66	$2.64
Operator resources/cwt.	$2.94	$2.87	$1.46	$1.48
Total costs/cwt.	$14.58	$14.62	$13.28	$13.09
Average farm price/cwt.	$13.38	$13.02	$13.49	$13.04
Return over total costs/cwt.	$-1.20	$-1.60	$0.21	$-0.05
Related Cost Factors				
Hired labor/cow	$266	$247	$474	$471
Total labor/cow	$544	$565	$577	$579
Purchased dairy feed/cow	$719	$690	$850	$800
Purchased grain & concentrate as % of milk receipts	28%	28%	28%	27%
Vet & medicine/cow	$69	$67	$92	$91
Machinery costs/cow	$464	$429	$408	$382
Profitability Analysis				
Net farm income (without appreciation)	$36,902	$28,429	$120,027	$109,531
Labor & management income/operator	$6,268	$1,018	$37,465	$27,298
Rates of return on:				
Equity capital with appreciation	2.1%	-0.2%	8.7%	7.1%
All capital with appreciation	3.6%	2.5%	7.9%	7.5%

Table 66.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
49 New York Dairy-Renter Farms,* 1995

ACCRUAL EXPENSES	
Labor: Hired	$15,226
Feed: Dairy grain & concentrate	61,814
Dairy roughage	4,814
Nondairy	116
Machinery: Mach. hire, rent & lease	3,962
Mach. repairs & farm vehicle expense	12,544
Fuel, oil, grease	5,289
Livestock: Replacement livestock	7,466
Breeding	3,112
Veterinary & medicine	5,918
Milk marketing	13,252
Bedding	1,332
Milking supplies	5,199
Cattle lease & rent	151
Custom boarding	913
Other livestock expense	5,442
Crops; Fertilizer & lime	6,196
Seeds & plants	2,607
Spray & other crop expense	3,489
Real estate: Land, building & fence repair	3,236
Taxes	1,171
Rent & lease	17,732
Other:	
Insurance	2,969
Utilities (farm share)	7,285
Interest paid	8,644
Miscellaneous	2,476
TOTAL OPERATING EXPENSES	$202,355
Expansion livestock	$10,527
Machinery depreciation	10,255
Building depreciation	1,855
TOTAL ACCRUAL EXPENSES	$224,992

ACCRUAL RECEIPTS	
Milk sales	$223,918
Dairy cattle	24,983
Dairy calves	3,149
Other livestock	720
Crops	2,222
Government receipts	2,644
Custom machine work	1,231
Gas tax refund	98
Other	2,367
TOTAL ACCRUAL RECEIPTS	$261,395
PROFITABILITY ANALYSIS	
Net farm income (without appreciation)	$36,403
Net farm income (with appreciation)	$38,646
Labor & managment income/farm	$19,839
Number of operators	1.39
Labor & management income/operator	$14,273
Rate of return on equity capital including appreciation	1.5%
BUSINESS FACTORS	
Number of cows	94
Number of heifers	64
Worker equivalent	2.77
Total tillable acres	255
Milk sold per cow, lbs.	18,164
Hay DM per acre, tons	2.2
Corn silage per acre, tons	12.9
Milk sold per worker, lbs.	615,135
Grain/conc. as % milk sales	28%
Feed & crop expense/cwt. milk	$4.64
Labor & machinery costs/cow	$911
Average price/cwt. milk	$13.16

ASSETS	Jan. 1	Dec. 31
Farm cash, checking & savings	$6,024	$8,234
Accounts receivable	17,365	20,926
Prepaid expenses	77	168
Feed & supplies	41,867	44,934
Dairy cows**	90,855	103,528
Heifers	35,957	37,715
Bulls & other livestock	800	1,420
Machinery & equipment**	96,151	101,210
Farm Credit stock	1,330	2,034
Other stock & certificates	2,989	3,465
Land & buildings**	31,628	42,830
Total Farm Assets	$325,043	$366,464
Nonfarm Assets****	47,482	51,656
Farm & Nonfarm Assets	$372,525	$418,120

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$8,062	$11,679
Operating debt	6,320	7,671
Short-term	2,558	3,115
Advanced gov't receipts	0	24
Current Portion:		
Intermediate	10,879	11,876
Long Term	2,694	2,622
Intermediate***	58,233	64,547
Long term**	32,326	49,378
Total Farm Liabilities	$121,072	$150,912
Nonfarm Liabilities****	5,311	5,765
Farm & Nonfarm Liabilities	$126,383	$156,677
Farm Net Worth	$203,971	$215,552
Farm & Nonfarm Net Worth	$246,142	$261,443

*A renter owns no farm real estate at the end of year or no tillable land. **Includes discounted lease payments.

***Includes Farm Credit stock and discounted lease payments for cattle and machinery.

****Average of 21 farms reporting.

Table 67.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 32 Top Ten Percent Farms by Rate of Return on All Capital (without appreciation), 1995

ACCRUAL EXPENSES		ACCRUAL RECEIPTS	
Labor: Hired	$158,578	Milk sales	$970,207
Feed: Dairy grain & concentrate	252,144	Dairy cattle	103,310
Dairy roughage	10,393	Dairy calves	10,108
Nondairy	308	Other livestock	3,713
Machinery: Mach. hire, rent & lease	12,375	Crops	38,107
Mach. repairs & farm vehicle expense	38,915	Government receipts	10,255
Fuel, oil, grease	16,427	Custom machine work	797
Livestock: Replacement livestock	6,712	Gas tax refund	1,209
Breeding	9,744	Other	6,299
Vet & medicine	29,733	TOTAL ACCRUAL RECEIPTS	$1,144,005
Milk marketing	45,711		
Bedding	13,671	PROFITABILITY ANALYSIS	
Milking supplies	21,489	Net farm income (without appreciation)	$185,589
Cattle lease & rent	3,642	Net farm income (with appreciation)	$208,876
Custom boarding	3,961	Labor & management income/operator	$79,807
Other livestock expense	26,238	Rate of return on equity	
Crops; Fertilizer & lime	19,404	capital without appreciation	13.7%
Seeds & plants	12,776	Rate of return on all	
Spray & other crop expense	14,426	capital without appreciation	11.1%
Real estate: Land, building & fence repair	10,829		
Taxes	12,813	BUSINESS FACTORS	
Rent & lease	21,720	Number of cows	347
Other:		Number of heifers	261
Insurance	8,185	Worker equivalent	7.70
Utilities (farm share)	24,078	Total tillable acres	691
Interest paid	78,259	Milk sold per cow, lbs.	21,547
Miscellaneous	11,070	Hay DM per acre, tons	3.8
TOTAL OPERATING EXPENSES	$863,601	Corn silage per acre, tons	18.0
		Milk sold per worker, lbs.	970,787
Expansion livestock	$26,738	Grain/conc. as % milk sales	26%
Machinery depreciation	37,771	Feed & crop exp./cwt. milk	$4.14
Building depreciation	30,306	Labor & mach. costs/cow	$903
TOTAL ACCRUAL EXPENSES	$958,416	Average price/cwt. milk	$12.98

ASSETS	Jan. 1	Dec. 31	LIABILITIES	Jan. 1	Dec. 31
Farm cash, checking & savings	$13,399	$11,364	Accounts payable	$28,060	$27,745
Accounts receivable	63,309	77,997	Operating debt	63,209	71,042
Prepaid expenses	1,819	3,688	Short-term	7,556	9,725
Feed & supplies	182,479	223,704	Advanced gov't receipts	0	0
Dairy cows*	340,038	380,368	Current Portion:		
Heifers	147,150	165,234	Intermediate	55,565	60,362
Bulls & other livestock	4,469	4,883	Long Term	28,701	27,423
Machinery & equipment*	294,812	324,686	Intermediate**	341,416	354,682
Farm Credit stock	9,083	8,590	Long-term*	401,715	410,663
Other stock & certificates	17,770	18,783	Total Farm Liabilities	$926,222	$961,642
Land & buildings*	780,079	810,883	Nonfarm Liabilities***	12,235	11,409
Total Farm Assets	$1,854,407	$2,030,180	Farm & Nonfarm Liabilities	$938,457	$973,051
Nonfarm Assets***	53,675	53,062	Farm Net Worth	$928,185	$1,068,538
Farm & Nonfarm Assets	$1,908,082	$2,083,242	Farm & Nonfarm Net Worth	$969,625	$1,110,191

*Includes discounted lease payments. **Includes Farm Credit Stock and discounted lease payments for cattle and machinery.
***Average of 15 farms reporting.

Table 68.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 321 New York Dairy Farms, 1995

ACCRUAL EXPENSES	
Labor: Hired	$57,561
Feed: Dairy grain & concentrate	115,549
Dairy roughage	4,095
Nondairy	140
Machinery: Mach. hire, rent & lease	6,139
Mach. repairs & farm vehicle expense	21,402
Fuel, oil, grease	8,837
Livestock: Replacement livestock	4,684
Breeding	5,002
Vet & medicine	12,605
Milk marketing	22,717
Bedding	4,872
Milking supplies	10,386
Cattle lease & rent	698
Custom boarding	2,717
Other livestock expense	11,353
Crops; Fertilizer & lime	10,057
Seeds & plants	5,977
Spray & other crop expense	6,531
Real estate: Land, building & fence repair	5,194
Taxes	8,802
Rent & lease	7,656
Other:	
Insurance	5,598
Utilities (farm share)	12,332
Interest paid	30,472
Miscellaneous	5,277
TOTAL OPERATING EXPENSES	$386,653
Expansion livestock	$9,025
Machinery depreciation	19,347
Building depreciation	15,065
TOTAL ACCRUAL EXPENSES	$430,090

ACCRUAL RECEIPTS	
Milk sales	$421,563
Dairy cattle	35,719
Dairy calves	4,310
Other livestock	866
Crops	8,016
Government receipts	5,468
Custom machine work	567
Gas tax refund	338
Other	3,836
- Non-cash capital transfer	0
TOTAL ACCRUAL RECEIPTS	$480,683
PROFITABILITY ANALYSIS	
Net farm income (without appreciation)	$50,593
Net farm income (with appreciation)	$62,032
Labor & management income/farm	$16,139
Number of operators	1.56
Labor & management income/operator	$10,346
Rate of return on equity capital including appreciation	3.4%
BUSINESS FACTORS	
Number of cows	160
Number of heifers	121
Worker equivalent	4.40
Total tillable acres	399
Milk sold per cow, lbs.	20,269
Hay DM per acre, tons	2.8
Corn silage per acre, tons	15.6
Milk sold per worker, lbs.	736,269
Grain/conc. as % milk sales	27%
Feed & crop exp./cwt. milk	$4.39
Labor & mach. costs/cow	$972
Average price/cwt. milk	$13.03

ASSETS	Jan. 1	Dec. 31
Farm cash, checking & savings	$7,024	$7,647
Accounts receivable	29,436	33,925
Prepaid expenses	869	889
Feed & supplies	84,741	90,254
Dairy cows*	159,322	171,015
Heifers	70,286	72,059
Bulls & other livestock	2,009	2,058
Machinery & equipment*	172,129	178,729
Farm Credit stock	4,959	4,907
Other stock & certificates	12,462	13,259
Land & buildings*	433,090	449,529
Total Farm Assets	$976,327	$1,024,271
Nonfarm Assets***	71,211	73,744
Farm & Nonfarm Assets	$1,047,538	$1,098,015

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$13,485	$16,668
Operating debt	18,046	20,131
Short-term	5,254	5,524
Advanced gov't rec.	47	103
Current Portion:		
Intermediate	26,032	28,375
Long Term	9,319	9,881
Intermediate***	149,398	154,867
Long-term**	156,878	164,461
Total Farm Liabilities	$378,459	$400,010
Nonfarm Liabilities****	5,451	5,521
Farm & Nonfarm Liabilities	$383,910	$405,531
Farm Net Worth	$597,868	$624,261
Farm & Nonfarm Net Worth	$663,628	$692,484

*Includes discounted lease payments. **Includes Farm Credit stock and discounted lease payments for cattle and machinery.
***Average of 184 farms reporting.

NOTES

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services.

Table A1.

PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1985-1995

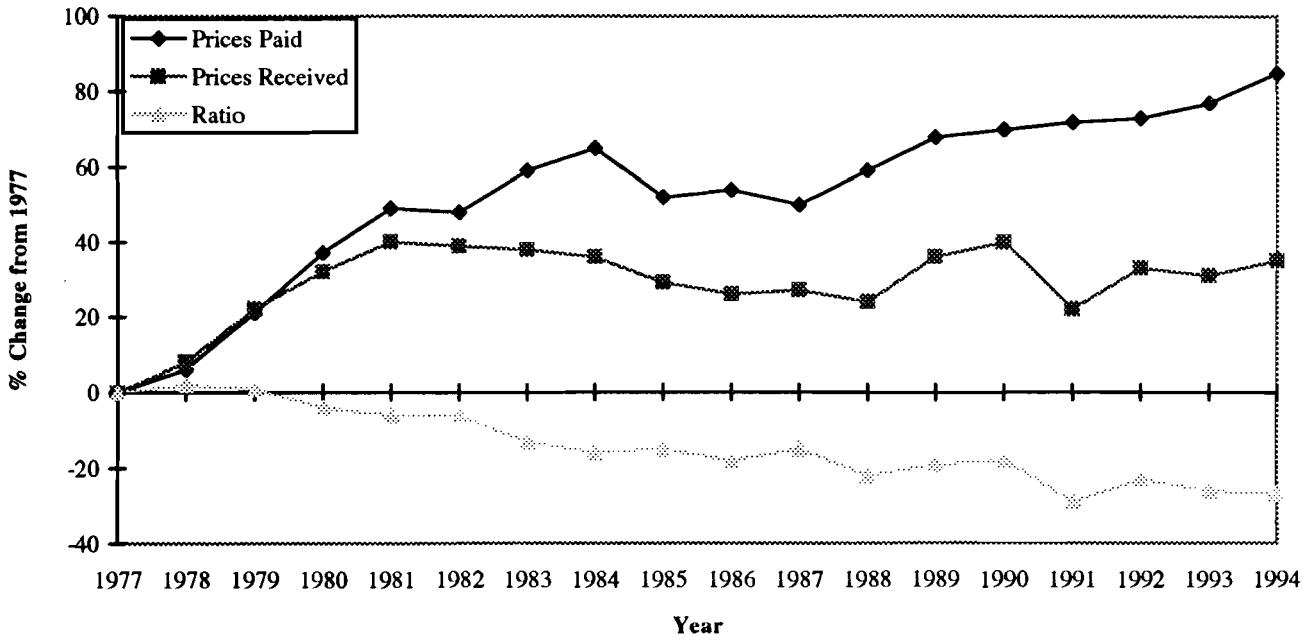
Year	Mixed Dairy Feed 16% Protein ($/ton)	Fertilizer, Urea 45-46%N ($/ton)	Seed Corn, Hybrid* ($/80,000 kernels)	Diesel Fuel ($/gal)	Tractor 50-59 PTO* ($)	Wage Rate All Hired Farm Workers ($/hr)
1985	164.2	238	67.30	1.080	16,800	4.01***
1986	162.9	200**	65.60	0.840**	16,550	4.41***
1987	152.8**	190**	64.90	0.765**	16,650	4.60***
1988	180.8**	208**	64.20	0.810**	17,150	5.02***
1989	188.5**	227**	71.40	0.828**	17,350	5.25***
1990	176.8**	215**	69.90	1.080**	17,950	5.51***
1991	171.8**	243**	70.20	0.995**	18,650	6.06***
1992	173.8**	221**	71.80	0.910**	18,850	5.76
1993	171.3**	226**	72.70	0.900**	19,200	6.16
1994	180.8**	233**	73.40	0.853**	19,800	6.61
1995	175.0**	316**	77.10	0.850**	20,100	6.53

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. *United States average. **Northeast region average. ***New York and New England combined, 1985-1991.

The table above shows average prices of selected goods and services used on New York dairy farms. Chart A1 shows the ratio of prices received for milk and prices paid by New York dairy farmers as a percent change from 1977. The ratio has been on a downward trend since 1978 except for slight increases in 1985, 1987, 1989, 1990 and 1992. Beginning April 1995, New York indexes of prices received for milk and prices paid by dairy farmers have been discontinued.

Chart A1.

RATIO OF PRICES RECEIVED FOR MILK AND PRICES PAID
by New York Dairy Farmers, 1977-1994



Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1986-89 and April for 1982-85), and an index of the real estate prices.

Table A2.

VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1981-1995

	Dairy Cows		Machinery*	Farm Real Estate	
Year	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1981	$1,120	226	149	$773	132
1982	1,010	204	163	821	140
1983	850	172	173	817	139
1984	790	160	181	848	144
1985	740	149	181	820	140
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,383	236
1995	1,010	204	250	1,380	235

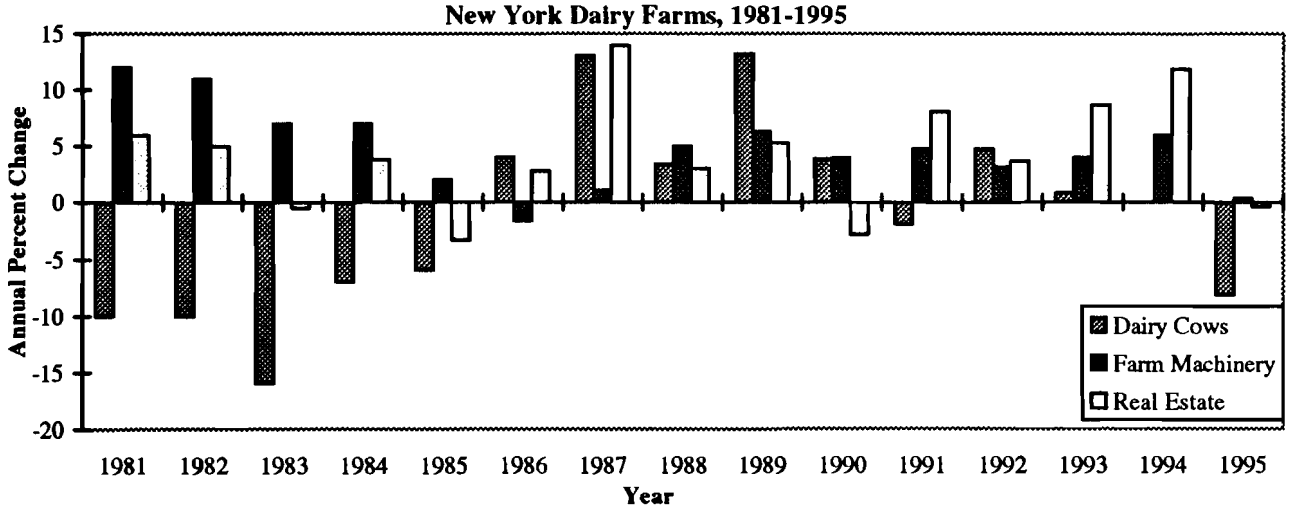
SOURCE: NYASS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.

*United States average; 1995 is estimated due to discontinuation of 1977=100 series.

Dairy cow prices fell 8.2% in 1995. The December 1994 value per head averaged the same as in December 1993. New machinery prices have increased since 1977 with a slight decline in 1986. The 1995 machinery prices were estimated one index point over the 1994 level. Farm real estate values decreased 0.2 percent in 1995.

Chart A2.

ANNUAL CHANGES IN DAIRY COW, FARM MACHINERY AND REAL ESTATE VALUES
New York Dairy Farms, 1981-1995



GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received such as the payment for December milk sales received in January.

Accrual Accounting: (defined on page 7).

Accrual Expenses: (defined on page 9).

Accrual Receipts: (defined on page 9).

Annual Cash Flow Statement: (defined on page 17).

Appreciation: (defined on page 10).

Asset Turnover Ratio: (defined on page 36).

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms: Average of 32 farms with highest rate of return on all capital (without appreciation).

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

bST Usage: An estimate of percentage of herd that was injected with bovine somatotropin during the year.

Business Records: Account Book: any organized farm record book or ledger. Agrifax (mail-in); Farm Credit's recordkeeping service. ELFAC: ELFAC II mail in record service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 36).

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 17).

Cash Flow Coverage Ratio: (defined on page 19).

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid: (defined on page 8).

Cash Receipts: (defined on page 9).

Change in Accounts Payable: (defined on page 9).

Change in Accounts Receivable: (defined under Accrual Receipts on page 9).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 9).

Change in Inventory: (defined on page 8).

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 26).

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt associated with their growth and maintenance.

Current Portion: Principal due in the next year for intermediate and long term debt.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals and vitamins purchased and fed to the dairy herd.

Dairy Records: DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage or other fodder purchased and fed to the dairy herd.

Debt Per Cow: Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios: (defined on page 15).

Deferred Taxes: (defined on page 14).

Dry Matter: The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year.

Farm Business Chart: (see definition and application on page 38).

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see pages 19 and 41.

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 41.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hayland, including new seedings, harvested once or more as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, nonwage compensation, payroll taxes, benefits, and perquisites paid employees.

Income Statement: A complete and accurate account of farm business receipts and expenses used to measure profitability over a period of time such as one year or one month.

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: (defined on page 11).

Labor and Management Income Per Operator: (defined on page 11).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 36 and 37).

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators, that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed.

Liquidity: Ability of business to generate cash to make debt payments or to convert assets to cash.

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone: milking parlor designed to move and milk cows in groups. Other Parlor: parlors in which cows move and are milk individually.

Net Farm Income: (defined on page 10).

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: (defined on page 9).

Nontillable Pasture: Permanent or semi-permanent pasture land that could not be included in a regular cropping sequence or rotation.

Operating Costs of Producing Milk: (defined on page 26).

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

Part-Time Dairy (farm): Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

Prepaid Expenses: (defined on page 9).

Profitability: The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: (defined on page 26).

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital: (defined on page 12).

Return to all Capital: (defined on page 12).

Rotational Grazing: The dairy herd is on pasture at least three months of the year, changing paddock at least every three days.

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): (defined on page 16).

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all noncorporate taxpayers.

Tillable Acres: All acres that are normally cropped including hayland that is pastured. Acres that are doubled cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: (defined on page 26).

Worker Equivalent: The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

OTHER A.R.M.E. RESEARCH BULLETINS

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